THE MYCOPHILE

Newsletter of the North American Mycological Association

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60.1 January - February 2020 www.namyco.org

Why you should renew your NAMA membership

- Increase your knowledge of mushrooms and other fungi.
- Keep informed about activities in the field of mycology.
- Be in contact with people who have a similar interest in mycology, whether it is taxonomy, ecology, toxicity, mycophagy or the many other practical uses of fungi.

What NAMA Does

Conferences — Holds an annual conference/foray in different parts of North America, often with short courses in mycology, always with lectures by professional mycologists.

Regional forays — Sponsors intimate gatherings limited to 40 NAMA members where learning and social time are encouraged.

Newsletter — Publishes *The Mycophile*, which gives mycological news and reports, notice of events of interest to members, reviews of recent books, and poison information.

Journal — Publishes *McIlvainea*, a peer reviewed journal, with scientific papers on all aspects of fungi, toxicology reports, and topics of general interest - with articles by leading professional and amateur mycologists.

Photo Contest — Conducts an annual photo contest and publishes the results.

Educational Programs — Provides teaching kits and activities for K-12 grade levels and professionally produced CDs for club use.

Scholarship — NAMA funds an annual fellowship with the Mycological Society of America to promising graduate students in mycology.

Speakers Bureau — Maintains a list of over 50 speakers who are available to give programs for affiliated clubs.

Toxicology — Provides expertise in mushroom poisoning information on the web and through a group of identifiers for doctors and veterinarians.

Directories — Publishes an annual directory of members and mushroom clubs.

Discussion groups — One for members and one for those interested in mushroom cultivation.

There is much more on the NAMA website including the only updated directory of mushroom clubs in North America, a comprehensive section on mushroom cultivation, a calendar of upcoming events, and more.

Dues

$25 members of affiliated clubs
$30 individual/family membership
$30 individual/household membership outside North America
$15 student membership
$60 sustaining membership
$500 life membership

The cost of printing and mailing *The Mycophile* continues to rise. NAMA spends more than twice what we charge for this service. We will be asking for $15 per year for a hard copy black and white subscription to *The Mycophile*, except for subscriptions outside North Amercia, where mailing costs are even higher. This is in addition to your membership dues. This change applies to all member categories, including Lifetime members. All dues must be paid in US Currency only!

$15 one year subscription to print hard copy.

Pay dues by check

Send your name, address (zip +4 please), home and work telephone number(s), email address, and check payable to NAMA to:

Christy Ecsedy
2647 Berlin Farm Road
Export PA 15632

Cover Photo 30 World Mushroom Stamps For Sale on ETSY: $4.99

The Mushroom Culinary Arts Corner

By Salma St. John, Committee Chair

Dear NAMA mushroom lovers,

I just wanted to share some of the highlights of the Mushroom Culinary Arts Demo and Tasting at the NAMA foray at Paul Smith's College, NY (August 8-11, 2019).

The event was attended by over 30 people; the number of attendees had to be limited due to the limited space in the kitchen available for the event. Eager attendees gathered around two large stainless-steel prep tables to watch the making of risotto with black truffles and wild mushrooms.

Before I started the demo, I asked Ursula Pohl, the "Mycophagy Guru" who has been concocting the mouth-watering tastings during the annual NAMA forays for over 25 years, to join me. I thanked Ursula for her culinary contributions and for being an inspiration to many of us. I offered her one of the complimentary bags of dried mushrooms, (generously donated by Phillips Mushrooms Company), as a gesture of appreciation.

While I was giving a brief account of "black and white truffles" (specifically, *Tuber melanosporum* and *Tuber magnatum*, respectively), a jar of chopped black truffles made the rounds so that everyone had a chance to sniff the heavenly aroma of the

chopped black truffles and to get details about the brand name: The Truffle Hunter (a UK brand). I also talked briefly about the history of making risotto and how arborio rice (short grain white rice known for its high content of starch) was brought to Spain and Italy by the Arabs in the 14th century. I also shared a short, funny story about the person, Valerius, to whom the risotto dish is attributed. At this point, the risotto recipe was distributed to attendees (it is available at **www.namyco.org** on the MCA page under "Recipes").

The making of risotto started by sweating the chopped onion in olive oil and butter,to which rice was added – and then the long process of stirring began!

While the risotto ingredients were taking their sweet time to mingle happily and love one another, a mushroom-shaped candy-cap-mushroom-and-gingerbread cookie," hanging from a satin ribbon, was passed to each guest for tasting (yes, you can have your

cookie and eat it too!). The ribbon symbolizes the unbroken circle and unity of all culinary mushroom lovers who eat the cookie and keep the tied ribbon.

Following the candy-cap cookie, a plate of pecan & walnut baklava sweetened with dried fruits (no sugar, syrup or honey) and flavored with candy-cap mushroom was also passed for a tasting. Many attendees made comments about the baklava being a unique and "guilt-free" delicious dessert.

Barbara Ching, our NAMA president, did the honors of drawing many names for prizes (dried mushroom packages, compliments of the Phillips Mushrooms Company).

The risotto was announced DONE when it reached a delightful creamy consistency and the rice texture was judged "al dente". At that point, everyone had a chance to taste it. From the sounds and the comments that the tasters made, I could tell that the microvilli of their taste buds have experienced the right flavor and taste, which I translated to "delicious!" Thus ended the Demo & Tasting!

Until the next time, here is to your mushroom culinary creations!

New Members WANTED!

Mushroom Culinary Arts (MCA), the newest NAMA committee, was established to promote and share knowledge of all of the aspects of the culinary arts that revolve around mushrooms.

MCA will endeavor to cover all aspects of cooking and eating mushrooms, specifically "wild mushrooms". The committee will explore preservation and storage of wild mushrooms, sharing of delicious recipes, information about the use of mushrooms in cuisines around the world and provide information about the latest mushroom research as well as innovations in mushrooms gastronomy.

If you are interested, please join the committee.

You can contact me at: **vicepresident2@mamyco.com**
I look forward to hearing from you!

Salma St. John, committee chair - NAMA Vice President

2019 NAMA Photo Contest Winners

The popularity of mushroom photography has grown over the years, resulting in some absolutely stunning photographs. Whether using an expensive DSLR camera with specialized lenses or a high-quality cell phone camera, the diversity of the fungi kingdom provides many opportunities to create compositions worthy of publication in field guides, across social media platforms and as artistic prints. Each year, NAMA holds a photography contest, providing a platform to highlight some of the finest examples of mushroom photography of its members. The contest has three categories in which to enter: documentary, pictorial and the judge's option. The documentary category features images that emphasize key morphological traits used to identify fungi and results in photographs that would be suitable for inclusion in a field guide. The pictorial category emphasizes the beauty and variety of fungi in their natural form, and the photos are judged on both technical and artistic aspects. The judge's option encompasses all other photographic expressions of mushrooms, including humor, mushrooms with animals, mycophagy and time-lapse series. The winners in each category have their photos shown at the annual NAMA foray evening program and reproduced in the newsletter for the viewing pleasure of NAMA members. Here we present the winners in the Judge's Option category and winners in the Limited division.

Judge's Option 1st Place, *The Space Fungus* by Mark Bower

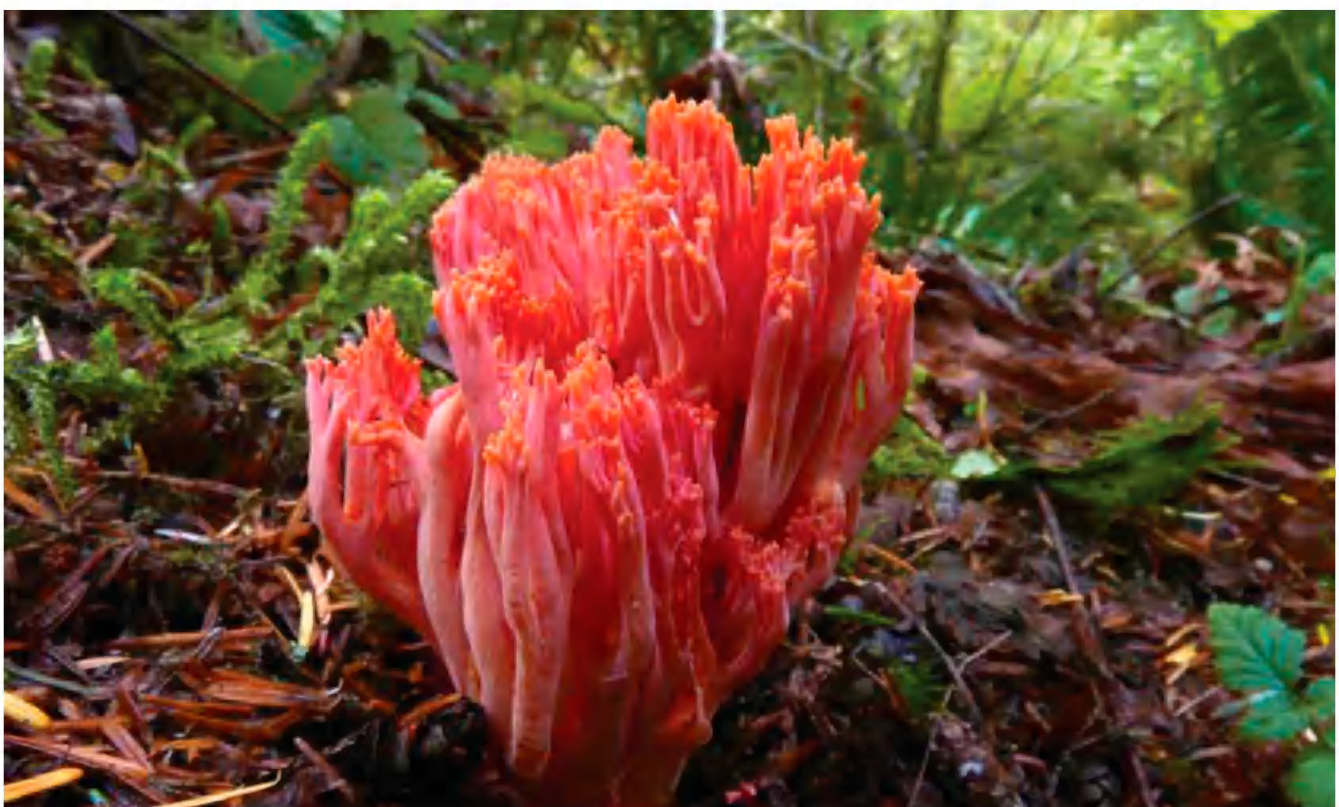
Judge's Option 2nd Place, *Black Trumpet Stuffed Zucchini* by Robert Gergulics

Judge's Option 3rd Place, *Turtle at the Lunch Counter* by Mark Bower

Limited Documentary 1st Place, *Lactarius repraesentaneus* by Chance Noffsinger

Limited Documentary 2nd Place, *Panus conchatus* by Steve Ness

Limited Documentary 3rd Place
Pisolithus arhizus by Charles Jones



Limited Pictorial 1st Place, *Ramaria cyaneigranosa* by Steve Ness

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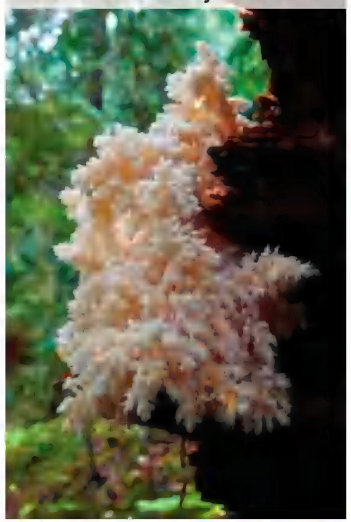
Limited Pictorial 2nd Place
Laetiporus gilbertsonii by Steve Ness

Limited Pictorial 3rd Place
Marasmius siccus by Kelly Sinclair

Limited Pictorial
Honorable Mention
Hericium abietis by Steve Ness



Limited Pictorial Honorable Mention
Amanita muscaria by David Osbourne

Limited Pictorial Honorable Mention
Retiboletus ornatipes by Charles Jones

Limited Pictorial Honorable Mention
Pleurocybella porrigens by Steve Ness

Fungal Art Series – Postage Stamps!!

By Howard Goltz

Fungal art is where you find it, even on an envelope! As art is in the eye of the beholder, I invite our readers to contact me with their ideas and references for future articles. Howard Goltz, Secretary, NAMA. Goltz.Howard@gmail.com

The first stamps featuring mushrooms were issued by Romania in July of 1958. These were followed by another set in October of the same year by Czechoslovakia (pictured in this issue of *The Mycophile* "Mycology Exhibit Gets Stamp of Approval). Since then at least 148 countries of the 195 in the world have issued over 585 stamps with mushrooms as the featured subject matter, with about 10-20 new stamps issued annually.

Between 1987 and 2010, the United States had issued only 10 postage stamps that included mushrooms as minor or secondary parts of scenes. These are described in detail, with photos, at https://www.psms.org/USstamps.pdf, an internet article summarizing United States postage stamps with fungi summarized from the Puget Sound Mycological Society newsletters by Brian S. Luther. This article brings together, in one place and in color, descriptions of all 10 United States postage stamps with fungi reference issued through 2010.

It wasn't until 2018 that the United States issued its first postage stamp that actually featured a mushroom, a Taylor Lockwood photo of *Mycena lucentipes*.

The United States first (and only) mushroom stamp, 2018 First-Class Forever Stamp. Bioluminescent Life: Mushrooms. Photo by Taylor Lockwood

If you have interest in collecting your own set of mushroom postage stamps, there are many offerings on the internet. Just type in "mushroom postage stamps." You may expect to pay from $0.50 to $50.00 per stamp. Examples follow:

The Philately: https://thephilately.com/topic/mushrooms $2.10 to $7.00 – singles to sets of 8 different stamps, European, Hungarian, GDR & Romania.

GDR 1974 European Toadstools $2.80

Mystic Stamp Company: America's Leading Stamp Dealer, from Bhutan to Tuvalu to Guinea-Bissau and Russia and China and Lesotho too. https://www.mysticstamp.com/Listing/Topics/3748_Mushrooms/

HOWEVER, If you want to add your own mushroom photography to the world of fungal postage stamps, there is even a website "Photo Stamps" that lets you create your own, personalized, custom USPS stamps for only $25.99 per sheet of 20 first class postage stamps – download your favorite mushroom photo to their site and they mail you the world's next great edition of mushroom stamps.

1973 Bhutan: mint souvenir sheet
3D Images - $15.00

1986 Hungary, used, canceled stamps: $1.75

1998 Lesotho, sheet of 12: $2.95

2018 Catalogue of World Wide Mushroom
Stamps: 71.78 Euro

https://photostamps.com/

Mycology Exhibit Gets Stamp of Approval; Mushrooms Are in the Mail at University Library

A mushroom on a rotting log and a postage stamp on an envelope from abroad: Each one engages avid collectors, from mycology to philately. A recent exhibit at a University of Florida library explored the curious intersection of the two, celebrating the beauty and significance of the Kingdom Fungi as expressed through the art of stamps from around the globe.

"Fungal Philately: Mushrooms on Stamps," an exhibit at the Marston Science Library on UF's Gainesville campus, curated by agriculture librarian Suzanne Stapleton and library assistant Sarah Prentice, ran from August 11, 2019 to January 13, 2020. Individual stamps and stamp sheets were shown with resources from the UF George A. Smathers Libraries in four themed cases, colorfully introducing amazing mushrooms, crucial scientific breakthroughs, and a prominent researcher who called Gainesville home.

In the first case, "Introduction to Fungal Philately," patrons learned that *Amanita muscaria* (fly agaric), *Boletus edulis* (porcini), and *Cantharellus cibarius* (golden chanterelle) are the most popular mushroom species depicted on postage stamps. Philatelic Mycology: Families of Fungi is the colorful centerpiece of the case; the book organizes international stamps by taxonomic family of the depicted mushrooms, rather than by country of origin and date of issue as is typical within philatelic displays.

Cantharellus cibarius received further attention. Enlarged reproductions of four stamps from different nations all depicted the golden chanterelle: Mongolia, 1985; Nicaragua, 1990; Poland (Polska), 1959; and Romania (RP Romina), 1958 – part of the first set of stamps depicting mushrooms ever issued. An antique plaster model of *C. cibarius* from the university's Plant Pathology Department was also displayed.

In the "Mushroom Diversity" case, a bioluminescent cover of *Mycologia* was paired with Bioluminescent Life stamps from the United States Postal Service. An unusual 1987 set of Bulgarian stamps featuring cross-section line drawings of each specimen, alongside other diagrams, helped exhibit patrons learn to differentiate between gilled and pored fertile surfaces.

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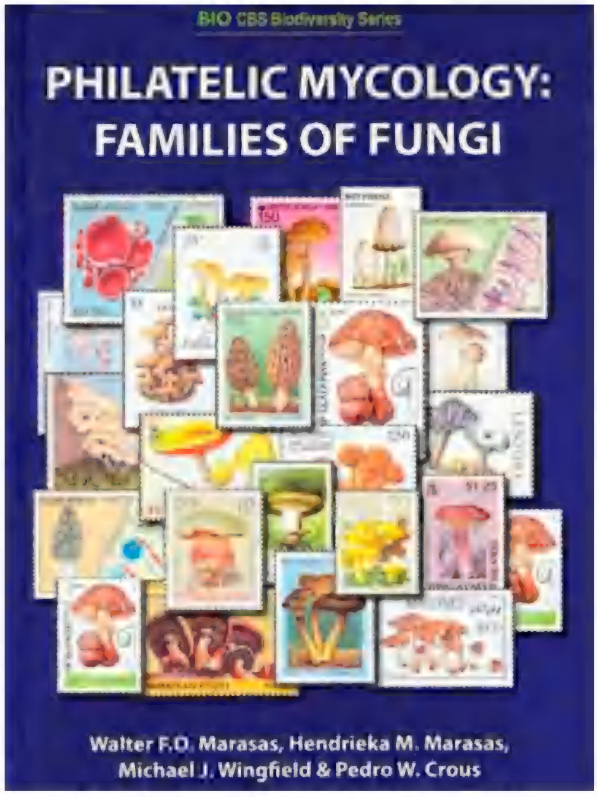
"Penicillin: A Fungal Hero" revolved around the 1978 Mauritius stamp set entitled *50th Anniversary of the Discovery of Penicillin*. Designed by Jessica Toombs, this commemorative sheet includes a reproduction of Fleming's handwritten lab notes when he first recognized Penicillium notatum suppressing the growth of *Staphylococcus* bacterial colonies. Also displayed was a 3D-printed model of a *Penicillium crysogenum* conidiophore.

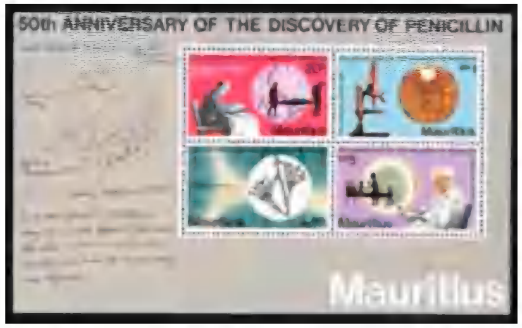
The "Mycologists" case centered on a 2001 stamp sheet from the Central African Republic.

Les Mycologues, which features three notable North American mycologists: William Alphonso Murrill (1869-1957), Fred Jay Seaver (1877-1970), and Arthur Henry Reginald Buller (1874-1944). Murrill, who founded Mycologia, the official journal of the Mycological Society of America, spent the last several decades of his life in Gainesville, home to the University of Florida, describing local fungi.

The "Fungal Philately" exhibit appeared in a high-traffic area on the main floor of Marston, the university's science and engineering library, offering a vivid glimpse to students of how fungi play an essential role in the environment, provide life-saving medicine — and sometimes adorn envelopes too.

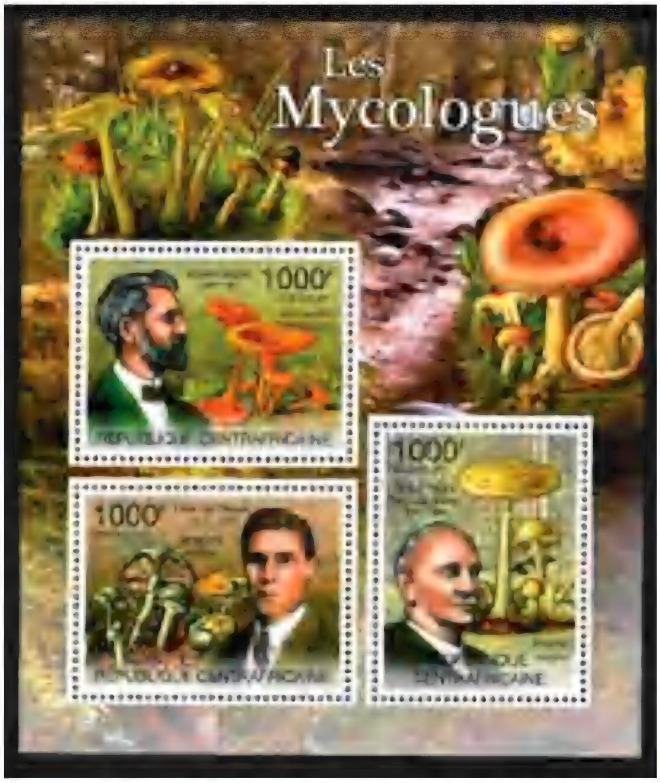

BIO CBS Biodiversity Series
PHILATELIC MYCOLOGY:
FAMILIES OF FUNGI
Walter F.O. Marasas, Hendrieka M. Marasas,
Michael J. Wingfield & Pedro W. Crous

This book notably organizes stamps by taxonomic family of the depicted mushrooms.



The Romanian stamp above is part of the first set of stamps ever issued depicting mushrooms.

Mycena lucentipes was photographed by Taylor Lockwood for the first mushroom stamp issued by the U.S. Postal Service.



The mycologist William Murrill, top left, lived and worked in Gainesville, home to the University of Florida

Unusual for mushroom-themed stamps, this set includes a cross-section line drawing of each specimen.

Book is from the collection of George A. Smathers Libraries, University of Florida.

All stamps are courtesy of Sarah Prentice, Florida Academic and Lichen Enthusiasts League.

Getting Lost

Mushroom hunters getting lost in the woods is not an uncommon occurrence. With our eyes focusing downward, we are often not orienteering regarding environment, landmarks or direction. Getting involved with the thrill of the hunt sometimes makes us unaware of the passage of time and impending weather changes. In 2017, National Parks Service units reported 3,453 Search and rescue incidents across all of the national parks[1], assisting day hikers, lost campers, missing children, hunters, and other recreational enthusiasts. Search and Rescue (SAR) is an operation mounted by emergency services, often well-trained volunteers, to find someone believed to be in distress, lost, sick or injured either in a remote or difficult-to-access area such as mountains, desert or forest, or at sea. Besides the national SAR teams, there are regional organizations, state-run groups, county-sized organizations, and even professional SAR groups.

Some recent mushroom hunting related recues include:

- Skamania County, WA. Jung VanAtta, age 75, rescued October 12, 2019 after four days
- Trillium Lake, Clackamas County, OR. Akemi Takahashi, age 80, rescued September 21, 2019 after two days
- Kispiox Valley, TX. Wayne Morrison, age 67, rescued August 29 after 3 days
- Douglas County, OR. Dale Westrom, age 43, rescued April 18 after 5 days
- Skamania County, WA. Colleen Mannahan, age 56, rescued September 29, 2018 after two days
- Mendocino County, CA. Mary Ann Dow, age 58, rescued November 26, 2016 after three days

One of the more recent, tragic missing mushroom

hunter case involved Hildegard Hendrickson, age 79. She went missing from the Okanogan-Wenachee National Forest on June 8, 2013 after setting out on her own. Hildegard was officially declared dead in 2015 and there have been some questions about the possible unsavory circumstances surrounding her disappearance.[2] She was an experienced mushroom hunter and educational chair for the Puget Sound Mycological Society, illustrating the fact that even experienced mushroom hunters can go missing.

U.S. Forest Service Guide: If You Get Lost

The best tool needed for survival in the event you get lost outdoors is your skill of advanced planning. You must expect the unexpected and plan accordingly. Even if you are going out for just a few hours, pack enough essentials that you can stay hydrated, fueled and prepared for any type of weather.

Your essentials should include at least:

- More than enough food and water for the activity you plan.
- A compass that you know how to use. You may want a GPS device, but those sometimes do not receive a signal or the battery fails. Cell phones also likely will not work because of a lack of signal.
- Appropriate maps. Study the terrain and your planned route. Know where you are going and how you will return.
- Sturdy hiking boots, clothes that you can layer depending on the weather conditions and additional socks in case the ones you are wearing get wet.
- A blanket, flashlight, matches kept in a water-resistant container, and other items that will help you survive overnight if necessary.
- Check with the local ranger district or forest office for special warnings, such as fires in the area, bear sightings, flooding, trail or road closures, etc.

It's also important that once you have planned your outing, tell someone. Give them exact details of where you are going, the trail you plan to follow, when you will return, the vehicle you are driving (and where you plan to park) and how many people will go with you – do not go alone.

If you do become lost, your most important tool is keeping a positive mental attitude.

Stop:

- As soon as you realize you may be lost: stop, stay calm, stay put. Panic is your greatest enemy.

Think:

- Go over in your mind how you got to where you are. What landmarks should you be able to see? Do not move at all until you have a specific reason to take a step.

Observe:

- Get our your compass and determine the directions based on where you are standing. Do not walk aimlessly.
- If you are on a trail, stay on it. All trails are marked with signs (where intersections meet) and diamond blazes or markers. However, signs are sometimes vandalized or stolen.
- As a very last resort, follow a drainage or stream downhill. This is often a difficult path but could lead to a trail or road. Again, this could be very dangerous.

Plan:

- Based on your thinking and observations, come up with some possible plans, think them through and then act on one of them.
- If you are not very, very confident in the route, then it's always better to stay put.
- If it's nightfall, you are injured or you are near exhaustion, stay in place.

Self-rescue tips:

If after careful planning and consideration you decide that you try to rescue yourself, here are some tips to remember:

- **Stop and rest when you start to feel tired.**

Don't wait until you are exhausted.

- **Your body can't hike hard and digest food at the same time.** Rest in the shade for at least 30 minutes when you stop to eat. If you are still tired after 30 minutes, continue to rest.
- **Make sure to drink enough water to avoid dehydration.** Symptoms include heading, feelings of irritation and frustration and more tiredness than warranted.
- **Stop and fix small problems while they are still small.** If you ignore your body and keep pushing, the pain or illness will only get worse and make recovery more difficult.
- **Avoid hiking between 10 a.m. and 4 p.m. on hot days.** If you are on a trail between those hours, find a shady spot and stay there until the temperature cools down. Adjust your hiking pace to what you can comfortably maintain and rest when you feel the need.

Source: U.S. Forest Service, **https://www.fs.fed.us/visit/know-before-you-go/if-you-get-lost**

[1]2017 Annual SAR Report Dashboard, **https://nps.maps.arcgis.com/apps/opsdashboard/index.html#/b526c87ae21f4a669eb6c9238c2c4bcf**

[2]**http://www.ifiberone.com/news/into-the-woods-six-years-later-the-mystery-of-hildegard/article_994e647a-acdd-11e9-89b4-db963e49dd39.html**

Lost and Found in the High Sierra

By Debbie Viess

"Don't mess with Viess when she's hungry."

My weekend in the High Sierra blissfully hunting snowmelt fungi, tiptoeing through wetlands after the elusive Mitrula elegans, photographing wildflowers, and happily watching a broad variety of fantastic breeding birds was sent a bit askew when I got myself thoroughly and hopelessly lost on a beautiful afternoon in late June.

I was so sure that I was headed in the right direction, too.

BAMS, our Bay Area mushroom club, had a foray up at Yuba Pass, and David and I and BAMS

member Barbara all headed up to snowmelt fields on Saturday. Our morning hunt was fun and productive, and after lunch we headed back out. We split up, as we are wont to do, pursuing our own path to fungal glory. Somehow, I had neglected to take a new compass reading and went with the old, since the van was still in the same place but I, alas, headed in a different direction. Bad move by me.

Meet-up time was 2:00 pm. At 1:30, feeling a bit tired (after all, we were at 8,000'+ elevation, the air is thin and the ground difficult going), I decided to head back to the van. So I went with my original 20 degrees of north heading, and walked and walked and walked. No straight lines here: tangles of conifers and thickets of alder surrounded all the lowland marshy meadows. The original road and our van lay just beyond one such wet meadow.

Snowbanks dotted the ground where the sun had not yet melted them to water. Snowmelt ran down the slopes forming rivulets and creeks and streams, ending in lusciously wet meadows, one following the next, around each corner of rising elevation. Each turn looked much like the last, but with subtle differences. Each time I thought that I saw other human footprints, they turned out to be bear; fresh poop piles confirmed my ID.

I expected to see those hungry spring bears around every corner!

And then I realized that I was lost. Immediately, my mouth dried and I felt fleeting panic. I only had a half pint of water with me. I picked and chewed on grass to wet my mouth, and eventually went up to a snowbank to fill my bottle with clean snow. Since it was still daylight and warm enough, and the hiking was burning lots of calories, I stuck the bottle in my shirt to melt the snow.

Dehydration solved, but what about the rest? I was dressed for a day hike, with only a light SPF shirt and a cotton hoodie. The New Zealand advice to hikers kept running through my head: cotton kills! My legs were good in long underwear, wool socks, and knee-high rubber boots (for those marsh slogs), but I was looking forward (not!) to a long cold night alone in the woods. I was very careful where I put my feet and in crossing streams. Mistakes kill, too.

As I desperately tried to find the van, I also took mental inventory of what I might stuff my wax-tex bags with for insulation under my clothes, and just where I might hole up for the night. I figured I would concentrate on getting found during the bulk of those daylight hours. I considered where I might build a smoky fire (I only had a tiny bit of fuel in a lighter) without creating a conflagration of my own, and I still, of course, was a bit embarrassed that I was lost at all, and worried that David was worried about me. I also wondered just how and when and even if anyone would come looking for me. I hoped that it wouldn't be David, because I didn't want him lost, too.

I went through every possible logic train to save myself, but dammit, nothing was working or making much sense. I walked and walked and walked, then attempted to retrace my steps, but my inability to go in a straight line made it nearly impossible. No phone, no walkie-talkie, no GPS, no landmarks, just me and the elements, and a long cold night alone in the woods looming.

Two hours in, I lost my embarrassment and prayed for rescue. But I also knew that it was up to me to save myself. After four hours of this, I headed up to the ridge top to see if I could find a road. Sure enough there was a dirt road, and I could even see a fairly fresh set of tire tracks, but many of these roads just allow high clearance FWD and ORVs, and there was no guarantee that anyone would be up there before night fell. I hoped that David had alerted the authorities, but I had no idea what the local search and rescue policies were or how they might go about finding me. I had visions of folks spreading out searching the ground but what ground and where and when? The water was LOUD and my whistles went unheard. At one point I thought that I could hear the staccato blasts of a horn honking, but I wondered if it was just my imagination and I had no clue where that sound was coming from.

Oh man, I was well and truly f----d.

And then, I heard the helicopter. Could that be for me?! I was up in a clearing, about to head down a dirt track on my wrong-headed direction, but my hope soared and I paused. It appeared to be circling the area. Good news! I tried to catch sun off my binocular lenses to reflect back to the helicopter and I madly waved my walking

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stick in the air. Nothing. Then I thought to tie my chartreuse green collecting bag, still full of mushrooms, to the end of my stick, which I did, and again madly waved my stick plus bag in the air as the copter passed right over my head! And didn't see me. But now, I had hope that they were looking. Not three minutes later, I heard a honking horn and a Jeep came around the corner of that ridge-top dirt road with a man shouting "Debbie?!"

SAVED!!

I was so, so glad not to have spent a long cold night (or two, or ...?) in the wilderness. The man who found me, Jerry, told me that the last man who went missing in that area had never been found. There have been 25 rescues in Sierra County this year, one of which was a hundred-year-old Vietnamese woman who spent two nights alone in those freezing cold woods. Now THAT'S fortitude!

When we got back to the van (I had been heading away from the van when I heard that copter), there were several emergency vehicles, a Search and Rescue coordinator (who had been napping and on vacation when he got the call), a local sheriff, my rescuer Jerry, a retired former S and R person who was local and had the right all-terrain vehicle and was called back into service, and David and Barbara. The road was completely blocked with these vehicles and we couldn't drive off.

I cracked, "So, we can't leave until we pay for that helicopter, huh?" At which point the man in charge said, "Oh, there's no charge."

WOW!

Sierra Search and Rescue had SUCH a great response, targeted and effective. It was a best-case scenario for everyone: I was unharmed and safe. I slept in my warm bag that night, grateful for every kilocalorie. Our campfire that night was a gift, and dinner, too.

Life is good.

On an amusing note, when the rescuers asked for a photo of me, this is the one that David provided. David wanted to show that I had attitude and was a survivor.

If it can happen to me, it can happen to you. Be careful out there, folks.

THE MYCOPHILE

Newsletter of the North American Mycological Association

A Model Foray Workshop for Difficult Taxa **Pg. 3**

Fungal Cinema as Art? Education? Outreach? **Pg. 8**

***Book Review*: Mushrooms of the Northwest** **Pg. 13**

60.2 March - April 2020 www.namyco.org

OTHER REGIONAL FORAYS, WORKSHOPS, AND EVENTS

The Gary Lincoff Memorial Foray

The Gary Lincoff Memorial Foray will be held on Saturday, September 12th: Walks, presentations, auction, book signing, sales, table-walk, mushroom feast. The Lodge, N Ridge Drive, North Park, McCandless Township, PA, 15101. We plan to combine this with a walk and mushroom collection in Cook Forest State Park on the Friday and a Science Sunday. 8am to 7pm, Saturday, Sept. 12th, 2020. See https://wpamushroomclub.org/lincoff-foray/

Guided morning walks and self-guided afternoon mushroom walks; Mushroom Walks will be conducted in North Park and in other woodlands nearby Lectures: guest speakers: Michael Kuo; Mushroom Feast; merchandise sales and silent auction. Michael Kuo, the principal developer of MushroomExpert.com, Leon Shernoff, editor of Mushroom, the Journal of Wild Mushrooming, will join us as a guest speakers and mycologists for the foray.Western Pennsylvania Mushroom Club cooks will prepare a Mushroom Feast with dozens of unique mushroom dishes to delight your taste buds.

Wildacres Regional Foray

September 24-27, 2020 | Wildacres Retreat, North Carolina

Wildacres Retreat, located just off the Blue Ridge Parkway near Little Switzerland, North Carolina, is renowned for the identification of new species to the foray each year, and for the identification of new species to the mushroom kingdom. As an attendee, you will have the opportunity to search for fungi along the creek sides of Armstrong Creek, Linville Falls, and Crab Tree Falls, in the highlands of Mount Mitchell, and in many other areas along the beautiful Blue Ridge Parkway.

Cover Photo

Phanerochaete livescens
By John Plischke III for the NEMF 2019 Crust Workshop

MO-NAMA 2020

PLAN AHEAD .... Mark on your calendar October 8-11 and make plans to attend the MO-NAMA2020, NAMA's annual foray for 2020. While detailed plans are being finalized, you can make your plans to spend the weekend exploring the hills of the Ozark Mountains. The event will be held at Trout Lodge, 72 miles southwest of St. Louis. We will have transportation available from and to the St Louis Airport.

The Missouri Ozarks offer excellent mushroom habitat. The terrain can be described, geologically, as a broad dome, the most extensive highland area between the Appalachians and the Rockies. We'll foray in rolling hills interrupted by steep escarpments, traversed by meandering waterways and marked by caves. The forests include many species of oak, hickory, walnut, red pine, and cedar.

Our chief mycologist will be Andy Methven, who is MOMS (Missouri Mycological Society) beloved Chef Mycologist. Other speakers and workshop leaders include Tom Volk, Britt Bunyard, Arleen and Alan Bessette, Rachel Swenie, and Rose Tursi, with more to be announced soon!

Trout Lodge itself has a rich and diverse history. The land originally was settled in 1904 by a Parisian who had traveled to St. Louis for the World's Fair. The stream which runs through the property was used for raising trout and to power a sawmill. Over the years and through various ownerships, the land was expanded to include 52,000 acres and a 360-acre lake. Today, Trout Lodge is a branch of the YMCA of Greater St. Louis. The resort is beautiful, with lots of amenities of interest to all, including children. Lodging is way above average, and the food is excellent.

For mycology experts to beginners, this year's NAMA foray assures adventures and fulfilling times for everyone. Also, don't forget to spend some time in St. Louis, a city with excitement for all. Whether it be sports, arts, history, or relaxation, you can find a place to celebrate fall in Missouri. You must be a current member of NAMA to attend. More to come in future publications.

Questions? You can contact either Sam Landes at treasurer@gamushroomclub.org or Maxine Stone at VeryMaxine@aol.com.

A Model Foray Workshop for Difficult Taxa

By Bill Sheehan, Alden Dirks, John Plischke III & Tom Bruns

Crust fungi are diverse, abundant and important members of our mycoflora, but they are among the least studied form groups and are more challenging to identify than most other macrofungi. However, they can be fun to study due to their beautiful colors and diverse micromorphology. They can be found year-round under dead logs – even when it's too dry or cold for fleshy fungi – and they are full of wonderful surprises for those who like microscopy.

To build knowledge of crust fungi, the North American Mycoflora Project organized an innovative all-day workshop at the 2019 gathering of the Northeast Mycological Federation in Lock Haven, PA. The novel part was that specimens were sequenced and all data were posted to an iNaturalist project: NEMF 2019 Crust Workshop. The workshop was organized by the North American Mycoflora Project as a model for training amateurs in difficult taxa at national and regional mushroom forays.

Bill Sheehan initiated the idea for the workshop and invited Karen Nakasone (USDA FS, Madison) and Tom Bruns (UC Berkeley) to lead it. However, Dr. Nakasone was unable to participate and Alden Dirks (a graduate student at U Wisconsin-Madison, now at U Michigan) filled in on short notice. After an orientation lecture by Dr. Bruns, 15 brave souls used microscopes and the key from the 1000-page tome, *Corticiaceae s.l. Fungi Europaei 12* by A. Bernicchia and S.P. Gorjon, to delve into this fascinating group of fungi, while Bruns and Dirks circulated to help interpret microscopic structures and terminology in the key. The workshop was held in the lab of Dr. Barrie Overton at Lock Haven University; he contributed micrographs that he made with his fancy BX53 microscope, with epifluorescence. Bruns collected tissue at the workshop and sequenced it back at Berkeley. John Plischke III took photos in the lab of all specimens tagged for sequencing and posted and organized them on the iNaturalist project site. NEMF's Board allocated funds for the sequencing. All specimens will be deposited at the Carnegie Museum of Natural History and ultimately posted to MyCoPortal.

RESULTS: 24 specimens were photographed and sequencing was attempted on 18. Here's the bottom line:

- 3 sequences failed - can't confirm or refute ID
- 4 sequences matched something that we had left as an unknown
- 6 sequences matched our morphological ID
- 8 sequences refuted our morphological ID

You can view the complete data here: https://docs.google.com/spreadsheets/d/1VOI5iYr0ZoX0sDo03dmZ9_aXD82s5lveroRzuAiVLAQ/edit?usp=sharing

The sequencing worked reasonably well in that 18 out of 24 gave us some information, but our morphological IDs needed some work. Slightly fewer than half of our morphological IDs were accurate. Perhaps that is not so bad for crusts, given the limited time and the fact that none of us were experts on them. We would have done better if Dr. Nakasone could have made it and we will likely get better as our collective experience grows.

The phylogenetic diversity of our sample was impressive. Our 24 samples came from 12 families in eight orders (see Table on next page).

Crust fungi are probably not for everyone but if we can motivate and train a few people in every club, we can make progress on these fascinating fungi. In this way, our workshop could be a model for other groups of fungi at future NAMA or NEMF forays: Get experts on a group of difficult fungi – say *Russula* or *Cortinarius* or most any ascomycete group – to lead a workshop to train eager participants and document and sequence a couple of dozen specimens. The former will build the skills of serious amateurs; the latter will make a valuable contribution to science.

Schizopora radula photo by John Plischke III

Agaricales

Pterulaceae

Radulomyces aff. paumanokensis

Auriculariales

Incertae sedis

Stypella subgelatinosa

? Stypella subhyalina

Cantharellales

Botryobasidiaceae

Botryobasidium aff. conspersum

Botryohypochnus aff. isabellium

Botryobasidium subcoronatum

Botryobasidium sp.

Hydnaceae

? Sistotrema efibulatum

Hymenochaetales

Schizoporaceae

Hyphodontia pallidula

Schizopora radula

Xylodon flaviporus

Polyporales

Cystostereaceae

Crustomyces aff. subabruptus

Fomitopsidaceae

Antrodia aff. sinuosa

Fibroporia radiculosa

Phanerochaetaceae

Phanerochaete livescens

Phanerochaete rhodella

Polyporaceae

Perenniporia subacida

Skeletocutis nivea

Russulales

Stereaceae

Gloeocystidiellum porosum

Thelephorales

Thelephoraceae

Tomentella ellisii

Tomentella sp.

Tomentella sp.

Tomentella sp.

Tomentella sp.

Tomentellopsis sp.

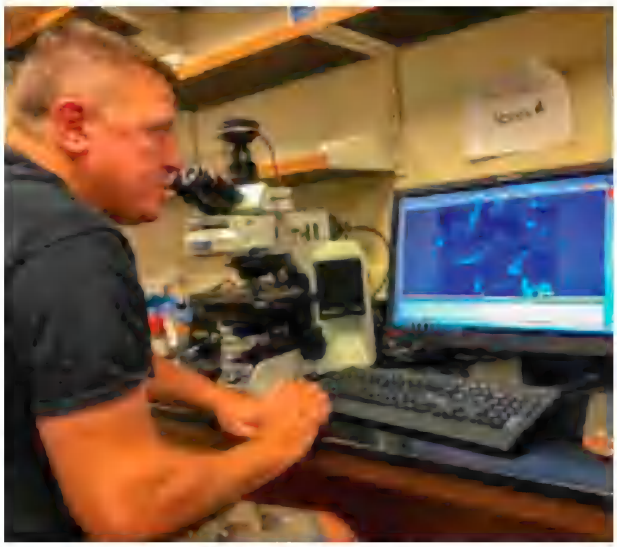
Trechisporales

Hydnodontaceae

Subulicystidium sp.

Crustomyces aff. Subabruptus photo by John Plischke III

Tom Bruns collecting crusts in the field for the workshop



Barrie Overton at his Olympus BX 53 Microscope with epiflorescence (DAPI filter set used for calcoflour) and Differential Interference Contrast

John Plischke III photographing specimens and Tom Bruns taking minute tissue samples for DNA extraction

Gary Lincoff Award for Contributions to Amateur Mycology

NAMA's *Award for Contributions to Amateur Mycology* is given annually to recognize a person who has contributed extraordinarily to the advancement of amateur mycology. Its recipients have often extensively conducted workshops, led forays, written or lectured widely about mushrooms and identifying mushrooms, all on a national or international level. In 2015, the name of the award was officially changed to recognize the contributions of Gary Lincoff; now the *Gary Lincoff Award for Contributions to Amateur Mycology*.

Nominations for this award should include a description of the accomplishments the nominee has made in the field of amateur mycology.

A name alone is not a sufficient nomination; neither is a profile on a website.

The recipient must be living at the time of the award.

Nominees who were not selected to receive the award are automatically re-nominated for 4 additional years, after which the nominee's name has to be re-submitted, and it's up to the nominator to keep track of this.

Selection among nominees is made by the voting of past award winners, and the award includes a plaque and lifetime membership in NAMA.

Nominations are accepted until April 1st of the award year.

Send a single copy of a Nomination by mail or email to:

Walt Sturgeon
Chair, NAMA Awards Committee
288 E North Avenue
East Palestine, OH 44413-2369
Email: mycowalt@comcast.net

The Harry and Elsie Knighton Service Award

The *Harry and Elsie Knighton Service Award* was established by the NAMA Board of Trustees to recognize and encourage persons who have distinguished themselves in service to their local clubs. It is named for the Knighton's, whose efforts began the North American Mycological Association in 1967.

The annual award consists of a plaque; publicity for the winner and club in *The Mycophile*; a one-year membership in the organization; and registration, housing and foray fees for the next NAMA Foray.

Each year's recipient is selected by the three most recent recipients of the Award.

Every NAMA-affiliated mycological club may nominate one candidate whom it feels has performed meritorious service during the current or preceding year, which has to be described!

Unselected nominees are automatically re-nominated for two additional years.

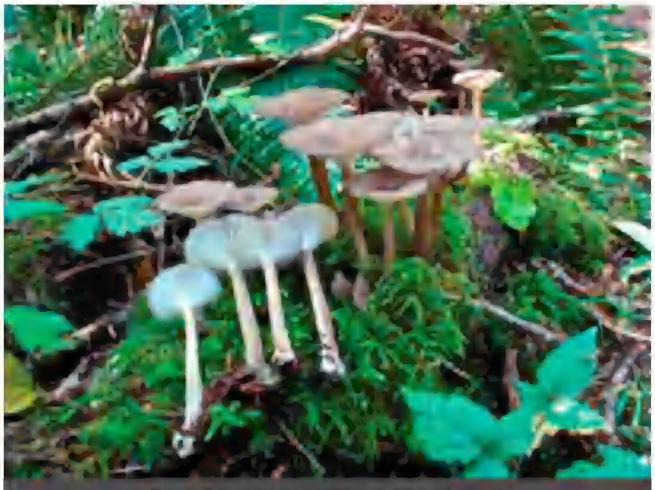
Nominations are accepted until April 1st of the award year.

Send a single copy of a Nomination by mail or email to:

Walt Sturgeon
Chair, NAMA Awards Committee
288 E North Avenue
East Palestine, OH 44413-2369
Email: mycowalt@comcast.net

2019 NAMA Photo Contest Winners

We continue presenting some more winners of the 2019 NAMA Photo Contest with the Open Documentary category. This group features photos taken by photographers who are more advanced and have won first, second or third place in past contests. The documentary category features photos especially suited as illustrations in field guides or monographs, or for use in educational lectures. Emphasis is placed on portrayal of key morphological characteristics such that the usefulness of the image as an identification aid is maximized. Subjects may be shot in the field, laboratory or studio and the photographer has complete freedom to cut, process, manipulate, or orient the specimen in any desired manner to achieve the goal. Close-ups of single features and photomicrographs are acceptable



Open Documentary Honorable Mention
Gerronema atrialba by Drew Henderson

Open Documentary Honorable Mention
Panaeolus cinctulus by Richard Tehan

Open Documentary Honorable Mention
Gliophorus psittacinus by Drew Henderson

Open Documentary Honorable Mention
Verpa bohemica by Drew Henderson

Open Documentary 1st Place
Entonaema liquiescens by Mark Bower

Open Documentary 2nd Place
Mycena haematopus by Robert Gergulics

Open Documentary 3rd Place
Amanita pantherina group by Drew Henderson

Fungal Cinema as Art? Education? Outreach?

"*Fantastic Fungi*," directed by Louie Schwartzberg, is a consciousness-shifting film that takes us on an immersive journey through time and scale into the magical earth beneath our feet, an underground network that can heal and save our planet. Through the eyes of renowned scientists and mycologists like Paul Stamets, best-selling authors Michael Pollan, Eugenia Bone, Andrew Weil and others, we become aware of the beauty, intelligence and solutions the fungi kingdom offer us in response to some of our most pressing medical, therapeutic, and environmental challenges." *Fantastic Fungi* is a fiscally sponsored project through *Reconsider*, a 501c3 organization. The urgent mission to change human actions and restore our planet motivates both this visually impressive film and its companion book.

Imagine an organism that feeds you, heals you, reveals nature's mysteries, and could help save the planet - today.
It's right under your feet.
Fantastic Fungi
The Magic Beneath Us
A film by Louie Schwartzberg
Narrated by Brie Larson

The Movie – *Fantastic Fungi, The Magic Beneath Us* – 81 minutes - Oct. 11, 2019

By now I expect most *Mycophile* readers have heard of, and many may have seen, the movie Fantastic Fungi. It has received stellar reviews by well-known critics, some of which follow. The movie first screened in October 2019 and has since

The Book – *Fantastic Fungi, How Mushrooms Can Heal, Shift Consciousness, and Save the Planet*, 184 pp. companion to the film, hardcover – August 27, 2019

been shown in over 100 cities across the US, Canada, Europe and Australia with more locations scheduled. You might be able to find a theater near you and get tickets for future screenings at: https://fantasticfungi.com/screenings/. This official website also includes the trailer, link to the companion book, film reviews, and importantly, a link to inquire about hosting a theatrical booking for your club (groups of 100 or more), and to bring the magic of this subterranean world above ground to your community.

Your NAMA-affiliated club may want to consider hosting a screening as a way to engage, educate and attract new members, or simply provide your current members with an enjoyable cinematic event.

Hosting/Outreach Example:
The *Minnesota Mycological Society* (MMS) worked with a Minneapolis neighborhood independent theater (seating 350) and the *Fantastic Fungi* website

to host a January 2020 screening. The MMS, the theater and the national promoters each advertised the movie on their websites and Facebook pages, each noting that the showing was sponsored by the MMS. Our club members received discounted ticket pricing, compliments of the theater. With on-line ticket sales, the first show sold out almost immediately. The theater then added 2nd, 3rd, and 4th screenings, all of which quickly sold out; that's 1400 attendees, creating public outreach well above our club's 500 +/- members! The department of sustainable design at Minneapolis College of Art & Design was brought on as a co-host for the 2nd and 3rd films and we've invited the MN Horticultural society to co-host the 4th screening with us.

The theater provided a table in their lobby for MMS members to answer mushroom questions and distribute club and NAMA literature. MMS speakers introduced each showing with an explanation of what MMS and NAMA do, and showed the NAMA Marketing Video prior to the main film. Kathy Yerich, VP of MMS, had the NAMA video converted into a DCP (Digital Cinema Package) file with a 5:1 theatrical audio mix (from the 2017, Cable WI Foray - contact Goltz.Howard@gmail.com to receive a copy for your club). She has asked Paul Stamets and Louie Schwartzberg (director) for permission to play the NAMA video before all other screenings hosted by affiliate mycological societies.

The theater's mixologist created and sold a high-octane "Foragers Old Fashioned" using dehydrated black trumpets, reishi and local maple syrup that were provided by MMS members – creating even happier viewers.

Mushroom cocktails anyone?

Fantastic Fungi Reviews:

"Schwartzberg's film quickly proves to be one of the year's most mind-blowing, soul-cleansing and yes, immensely entertaining triumphs." ~ *Matt Fagerholm, RogerEbert.com* 3.5/4.0 stars

"Louie Schwartzberg's lightly informative, delightfully kooky documentary, "Fantastic Fungi," offers nothing less than a model for planetary survival." ~ *Jeannette Catsoulis, The New York Times*

"Gorgeous photography! Time-lapse sequences of mushrooms blossoming forth could pass for studies of exotic flowers growing on another planet." ~ *Joe Morgenstern, The Wall Street Journal*

"A must see for anyone interested in life, death and the pursuit of the planet's well-being." ~ *David Carpenter, Forbes*

"100%" ~ *Rotten Tomatoes*

"Charming Documentary 'Fantastic Fungi' Explores the Miracle of Mushrooms" ~ *Rex Reed "Observer"*

My impression of the film is that it targets a broad public with a vivid introduction to the world of fungi including: what fungi are, their history, how they interact with the environment, their edibility, beautiful images and time-lapse photography, psychedelics, expanding consciousness, bio-remediation, and an overview of scientific research, neurogenesis and medicine. More experienced mushroom enthusiasts might find the film falls short of their anticipated depth, while being overdone on psilocybin related imagery (recall 1967; *Lucy in the Sky with Diamonds*?), but it's all wrapped up in a highly entertaining and beautiful execution. Our audiences gave it applause!

Go see it if you can, invite your community and publicize your club and NAMA!

One of a series of Mycophile articles on "Fungal Art" by Howard Goltz, Secretary, NAMA. As art is in the eye of the beholder; I invite you to contact me with what you consider "mushroom art" and your ideas for future articles at: Goltz.Howard@gmail.com.

Mushroom Flavor Chemistry Analysis, A Promising Implication for Food Futures

by Salma St. John, *Vice President, NAMA*

Both cultivated and wild mushrooms are known for their unique aromas and flavors. Attempts to isolate and recognize tastes and flavors of food are not a new trend. Beside the four recognized tastes: bitterness, saltiness, sourness, and sweetness, a fifth taste was added to the list, umami, which was identified by the Japanese nearly a century ago. Mushrooms are one of the foods that are rich in umami, which is characterized as being "savory" or "meaty" because it contains high levels of a certain amino acids, such as glutamate and aspartate, peptides, and other umami and saltiness enhancing molecules.

It is exciting that a growing body of research is being focused on analyzing the chemistry of mushroom aroma compounds that are found to have flavor-enhancing properties. These flavor compounds could be used in meatless or reduced-meat foods to provide a better umami taste experience.

Very interesting research is done by Dr. John P. Munafo, an Assistant Professor of flavor science and natural products chemistry in the Department of Food Science at the University of Tennessee. Dr. Munafo was a guest speaker at the Wild Acres foray in North Carolina in September of 2019, which I attended. His presentation was on "flavor chemistry and identifying and quantitating key aroma- and taste-active molecules in foods, including edible mushrooms". I was intrigued by the presentation and wanted to share it with the Mycophile audience.

Here is the article:

Mushroom Flavor Science Research at the University of Tennessee

by Dr. John Munafo

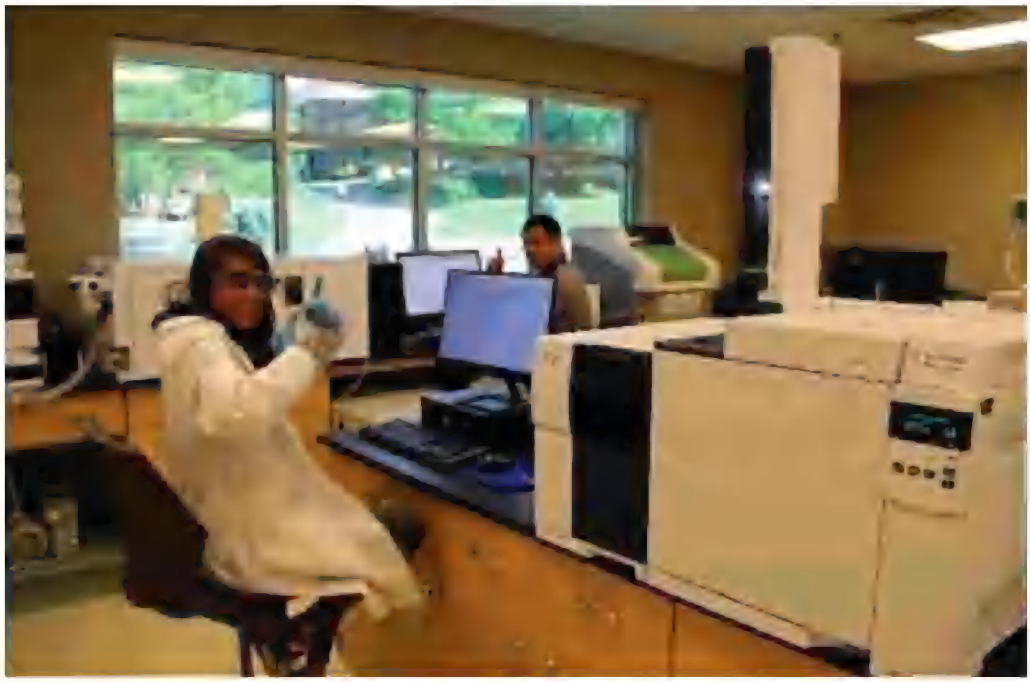
Enhancement of both flavor and the health-promoting properties of mushrooms (both wild and cultivated) presents a substantial opportunity for improving the quality of the global diet. Flavor is the combination of aroma and taste sensations. Aroma is the perception of selected molecules (called odorants) by the olfactory receptors in the nasal cavity, whereas taste is the perception of selected molecules (called tastants) by taste receptors in the oral cavity. Surprisingly, it has been recently discovered that these flavor receptors occur throughout our entire body (e.g., digestive tract, cardiovascular system). So, our body is "perceiving" the flavor molecules from our food long after we swallow, and these molecules trigger a cascade of signals that result in physiological responses in our body. Little is known about the flavor molecules in mushrooms and the role these molecules may play in the human body.

Our research on mushroom flavor chemistry consists of identifying and measuring the key aroma- and taste-

PhD student Melissa Dein extracting odorants from mushrooms.

active molecules in culinary mushrooms. This is accomplished through technique called aroma extract dilution analysis (AEDA) to identify the odorants and taste dilution analysis (TDA) to identify the tastants. We then use a technique called stable isotope dilution analysis (SIDA) to accurately measure the molecules in the mushrooms. Our goal is to apply a fundamental understanding of mushroom flavor to aid in the development of foods with improved flavor and, thus, increased consumer acceptance and preference. So far, we have successfully applied these technologies to enhance the flavor of low-sodium foods and mushroom-based meat alternatives. "*Healthy Foods with Great Flavor*" is the vision of the mushroom flavor science leg of our research program.

Wild mushrooms are a popular ingredient in the cuisines of many cultures because of their pleasantly unique flavor and texture. The principle odorants responsible for the characteristic raw mushroom aroma, 1-octen-3-one and 1-octen-3-ol, have been studied at length. Thermal processing of mushrooms, such as pan frying or sautéing, lower the concentration of these two odorants and generate other odorants often associated with "meaty or savory-like" aroma attributes. In addition, mushrooms are often cooked with a combination of sulfur-containing plants of the *Allium* genus, such as onions and garlic, or with other ingredients rich in sulfur-containing amino acids, that further enhance the generation of desirable odorants. Due to their pleasant flavor, mushrooms are enjoyed as ingredients included in a wide variety of broths and sauces. The pleasing altered aroma profile of cooked mushrooms and their association with savory foods suggests that a better understanding of the fundamental flavor chemistry occurring in their thermal processing would be useful to the food and culinary industry. Insight into the flavor chemistry that takes place during the thermal treatment of mushrooms under kitchen-like cooking conditions may guide the development



Dr. Philipus Pangloli and PhD candidate, Purni Wickramasinghe, working on LC-MS and GC-MS. LC-MS is used to analyze taste-active and bioactive molecules from mushrooms. GC-MS is used to identify mushroom odorants (aroma-active).

of pleasant flavors that enhance the flavor of savory foods such as beef or chicken, other meats, and low sodium food applications.

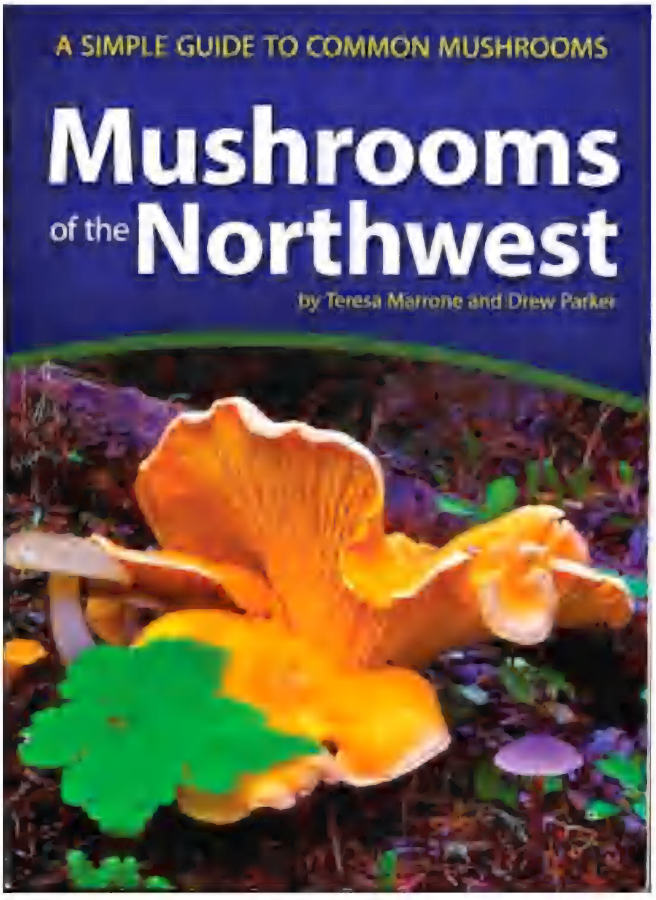
PhD candidate, Purni Wickramasinghe, isolating bioactive molecules from mushrooms using preparative-high performance liquid chromatography (prep-HPLC).

Published olfactory research on mushrooms has focused mainly on the raw mushroom-smelling odorant 1-octen-3-ol; consequently, not much is known about the odor quality of cooked mushrooms. One exception to that trend would be the work of Grosshauser and Schieberle who used gas chromatography-olfactometry (GC-O) to identify the key odorants in panfried mushrooms. Further research into the flavor compounds of cooked mushrooms could positively impact the knowledge base for mushroom flavor, with widespread implications.

When mushrooms are cooked, the heat treatment, as with all foods, leads to numerous chemical reactions, including the degradation of carbohydrates into mono- and disaccharides and proteins into peptides and amino acids. Sugars and amino acids then serve as precursors of odorants formed in a myriad of pathways via the Maillard reaction. Little is known about the flavor chemistry that occurs when mushrooms are processed, such ads drying, boiling and sautéing. There is a substantial opportunity to learn more about the fundamental flavor chemistry of mushrooms. A better understanding of mushroom flavor chemistry can help guide new recipes, optimize cooking techniques for higher flavor, and be used to develop a new suite of mushroom-derived flavors.

Wild mushroom field work in the forest

Mushrooms of the Northwest: A Simple Guide to Common Mushrooms



Teresa Marrone and Drew Parker
2019, Adventure Publications, Cambridge, MN
www.adventurepublications.net / 1-800-678-7006
ISBN 978-1-59193-792-0 (296 pages, softcover, $16.95)

This is a small (roughly 4.5 × 6 inches) guide that, as the title states, deals with mushrooms commonly encountered in the Northwest (rather narrowly defined as Washington, Oregon, and Idaho). It "was written with the beginning mushroom enthusiast in mind." The publisher's notes suggest that over 400 species are covered but that number must include pretty much every species mentioned anywhere, as the number of well described and illustrated species is much smaller (I get about 150, although an exact count is difficult because of the number of species groups utilized [roughly one-third of the 150]). Approximately 200 additional species are illustrated but with only a few words of descriptive text. All the species also occur outside the subject area and almost all of them are covered in other books. If this sounds familiar, it should. This new guide from Adventure Publications is nearly identical (quite a lot of the text in fact is identical) to the earlier *Mushrooms of the Upper Midwest: A Simple Guide to Common Mushrooms* by Teresa Marrone and Kathy Yerich (reviewed in the Jan-Feb 2015 *Mycophile*) and *Mushrooms of the Northeast: A Simple Guide to Common Mushrooms* by Teresa Marrone and Walt Sturgeon (reviewed in the Nov-Dec 2016 *Mycophile*). A pattern is developing here — are southeast and California books in the works?

In addition to the two previous mushroom guides, Teresa Marrone has written a number of outdoor-themed books as well as cookbooks featuring wild foods. She lives in Minneapolis and is not known to be part of the Pacific Northwest mushroom scene. In fact it is not clear whether she has any direct experience with our fungi. For that, she made the wise choice of enlisting Drew Parker, from northeasternmost Washington, at the very fringe of the three-state area. Drew is a member of the Pacific Northwest Key Council, has conducted several surveys of mushrooms on national forest lands, and is well known in this region as an identifier and photographer. He contributed the bulk of the photographs to the project, along with a large number of other photographers, apparently identified through their internet postings on *Mushroom Observer* and other sites.

The introductory material is brief, comprising only about 20 pages. It includes the rationale behind the book, an explanation of what mushrooms are and how to look at them, cautions for eating them, a bit of basic fungus biology, and a couple pages on the region's terrain and climate (new to this book). This is followed by an explanation of how best to use the book, a description of the ten morphological groups (cap and stem with gills, cap and stem with pores, coral and club fungi, etc.) used to organize the Mushrooms Grouped by Type section of the book, and the species accounts. A list of books and websites, glossary, and index follow the species treatments.

The species accounts occupy 246 pages, broken down into three main sections: Top Edibles, Top Toxics, and Mushrooms Grouped by Type. Other than the description of the morphological types, there are no keys or other identification aids. The reader is directed to look for picture

matches, starting with the morphological groups. Unfortunately, separating out the main edible and poisonous species makes the user have to look in three different sections of the book before deciding whether (s)he has found a match for the mushrooms in hand. Within the morphological groups, the species are organized by color (quite useful for wildflowers but not so useful for the legions of brown mushrooms), proceeding from light to dark, which leads to juxtapositions of very unlike things such as *Agaricus augustus* (the prince) followed by *Marasmius oreades* (the fairy ring mushroom) and a *Phaeocollybia kauffmanii* group (erroneously given the common name "dark-rooting collybia group" [they aren't collybias], and species of *Suillus* appearing in four different places. Such things are confusing for someone with a bit of experience and make it hard for a beginner to begin developing a feel for the Friesian genera that form the basic framework for learning mushroom identification.

The "species" accounts include a number of groups, such as morels, toxic boletes, and earthstars, in addition to descriptions of single species. The content of the entries varies. The headings are all common names, with the scientific names in a much smaller font beneath them. Information categories include Habitat, Description, Spore Print, Season, Other Names, Compare, and Notes although, for many species, not all are included. The page edges are color-coded to facilitate finding the edibles (green), toxics (red), and morphotype (ten different colors) sections. The pages also include several icons for those same groupings, plus habitat and fruiting season. I didn't find the icons useful as they merely repeat information in the descriptions and also include adjacent tiny-font text explaining their meanings. The more important features of each fungus are highlighted in the text through use of a colored boldface font.

The photographs vary in size from a whole page down to roughly one-eighth of a page, and having a mix of sizes on one page sometimes makes it difficult to judge the relative sizes of the different mushrooms shown. The images are of uneven quality, although most are good and, at least the larger ones, show the key features well. Some are excellent, but others are underexposed, lack sharp focus, have inaccurate color cast, or fail to show necessary identification features.

As was the case with the first two books, the authors emphasize the value of scientific names and the limitations of common names, but then use common names, rather than scientific ones, in the main headings, photo captions, and text.

The information presented generally is accurate. However, there are a few glitches. Using the scientific names to refer to mushrooms is not "taxonomy." A rather high percentage of the glossary definitions are either incorrect (e.g., "mycology" [it is the study of fungi, not the study of mushrooms], "volva," and "white rot"), not helpful (we're told that a "fungus" is a member of Kingdom Fungi, but nothing about what actually makes a fungus a fungus), or not very clear (e.g., those for "genus" and "kingdom"). Including "inky caps" as a group in the Top Edibles section is misleading. Although probably all of them could be eaten by most people with no ill effects, the overwhelming majority are too small to be of any culinary interest. Only *Coprinus comatus* (shaggy mane), *Coprin(ell)us micaceus* (mica cap), and perhaps *Coprinus/Coprinopsis atramentarius/-a* (alcohol inky, which is toxic when interacting with alcohol in one's system) can be considered common edibles in the group. Morels are considered a top edible and verpas are categorized as inedible, despite the two groups being very similar edibility-wise. For nearly everyone, both need to be cooked well and, even then, some people cannot tolerate them.

Nevertheless, like its predecessors, this is not a bad little book. It isn't very expensive and using it might help a beginner decide whether mushrooms are something worth learning more about. However, I remain skeptical about how well it will help people start learning to identify mushrooms. I fear that not grouping the species by the traditional Friesian genera will prevent newcomers from beginning to develop a feel for what, for example, an amanita, russula, or cortinarius is, and that is an essential first step in becoming skilled at mushroom identification. As for mushroomers with some experience (remembering that this is not the book's target audience), nearly all the species can be found in many other field guides, so adding this to an existing library would probably not increase one's ability to identify many things. However, if your library is still small, this could be a handy addition.

Steve Trudell

Obituaries

Patricia Ann Lewis. November 2, 1942 – February 13, 2020. Patricia Ann Lewis, 77, of Newton, passed away on Thursday, February 13, 2020 in Beaumont. Patricia was born on November 2, 1942 in Galveston, Texas to the late Ervin and Annie Muller. Patricia is survived by her loving husband David Lewis; sister, Ervina McCarvell; children, Rhea Scadden and husband Bill, Darryl Barnhill and wife Linda, Ronnie Hebert, Sr., Patsy Hohensee and husband David, Raymond Hebert, daughter-in-law Terri Barnhill, wife of Jay who preceded her in death; grandchildren, Eric Barnhill and wife Christy, and Austin Barnhill, Joshua Shenkir and wife Lauren, and Matthew Scadden and wife Cortney, Jessica Barnhill, Alexis Moon, and husband Blue, Ronnie Hebert, Jr. and wife Alyssa, Kourtney and Chelsey Hohensee, Wendi Browning and husband Jerry; great grandchildren, Trey, Nicholas, Hunter, Alaina, Elise, Claire, McKenna, Colbie, Hayden, and Dalton; nephew, Christopher McCarvell and wife Melania; great nephews, Michael and Nathan, great niece Marissa. Patricia was a long time member of NAMA.

In lieu of flowers the family request donations to: North American Mycological Association, mail to Melodie Gates - North American Mycological Association Treasurer, 1631 Lana Lane SW, Tumwater, WA 98512.

Chris Wright. NAMA has lost an outstanding MMHC member, Dr. Chris Wright who passed away peacefully Wednesday, January 29, 2020 at age 58. He had been a NAMA club member since the 1970's or 80's and a Michigan Mushroom Hunters Club member almost since it formed in 1981. I recall him doing mushroom kit making way back at Michigan's Waterloo State Recreation Area for our MMHC annual "Fungus Fest" in the early 1980s and still continuing this, and teaching how, for us through last year, 2019, at Michigan's Proud Lake Recreation Area. I worked with him many years on spreading the word about growing mushrooms at home. Chris was always available to assist us and was named an honorary life member of our club.

After years of involvement in mycology, specializing in growing mushrooms, he received a Ph.D. in Plant, Soil and Microbial Sciences from Michigan State University, and a B.S. in Psychology from Northern Michigan University. Thus he had many friends and associates at these Universities. He built and served as President of Easygrow Mushrooms and Composting LLC which produced mushroom grow kits and mushroom spawn for a wide clientele. He also frequented farmers markets. We all well knew his sense of humor and adventure.

It was Chris' vision to introduce mushrooms to people, and to ensure the safe availability of wild foraged mushrooms in the marketplace that spawned the founding of MAMI, Midwest American Mycological Information program in 2014 (https://midwestmycology.org/). When Chris heard about the dilemma posed by the U.S.A. Department of Agriculture beginning to insist that any mushroom found "in the wild" needed to be inspected by a licensed mycologist before it could be sold anywhere in our nation, he started to act. The Federal Department of Agriculture had contacted the Michigan. Department of Agriculture who then called the MI Club. Of course, we realized the liability as we could not just name a person as being qualified. When Chris heard about this, he got busy and got a grant to train and test individuals for licensing by the Michigan Department of Agriculture. He thus initiated MAMI, Midwest Association Mycology Information project, formed a board, and we got busy writing a web site of 20 fairly easy to identify edible Michigan Mushrooms and 6 toxic ones, plus writing up 20 test questions for each species. Classes were set up, along with materials for study and interested parties then went to an all-day class, ending with testing. Results were sent to the MI Department of Agriculture which made decisions about giving out 5 year licenses. In conclusion, his many workshops and contacts in the Michigan Club and tireless efforts to promote mushroom growing and harvesting, his expansive knowledge about Michigan mushrooms, and his leadership at NAMA as Committee Chair of the Cultivation Committee will be sorely missed.

A "Celebration of Life" service will be held at a future date and it will be announced later. He and his fiancée Jacque were engaged not long ago. Go to the funeral home website if you wish to leave a message of condolence or comments:

https://www.legacy.com/obituaries/detroitnews/obituary.aspx?n=christopher-a-wright&pid=195245783&fbclid=IwAR0r6WtRJB8uNsjJRmGb1ej7y2lDSL6Q-89rPHdnyqIAwCKeGJOZsTPD6Ic

By Sister Marie Kopin C.PP.S. (Life member of NAMA, Board member of MAMI and NAMA, past Secretary of MMHC, and NAMA Ed Committee Chair). *See photo on back page.*

North American Mycological Association
Bruch Reed, Executive Secretary
1930 W. School St. #2
Chicago, IL 60657

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Chris Wright teaching a workshop at the Chippewa Nation Tribal Center, Isabella County, Michigan

The Mycophile • Edited by Karen Monger • Printed by Old Town Printing, Inc.

THE MYCOPHILE

Newsletter of the North American Mycological Association

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60.3 May - June 2020 www.namyco.org

REGIONAL FORAYS, WORKSHOPS, AND EVENTS

Gary Lincoff Memorial Mushroom Foray
September 12, 2020 North Park, Pennsylvania

The Western Pennsylvania Mushroom Club will hold the Memorial 19th Annual Gary Lincoff Mushroom Foray. This one-day event takes place in the Rose Barn, Pearce Mill Road, in North Park, McCandless Township. Driving instructions are on the website. On Saturday activities include walks, presentations, auction, sales, table walk, and a mushroom feast. Guest mycologists Michael Kuo, of Mushroom Expert website renown, and others. The $55 fee for non-members includes 2020 & 2021 membership but does not include lodging, for which you must make your own arrangements.

Details and prices will shortly be posted on the club website: http://wpamushroomclub.org/lincoff-foray/
For more information, contact the Foray Chair,
Fluff Berger: 724-601-8382,
Lincoff-Foray@wpamushroomclub.org

2020 NEMF
44th Annual Samuel Ristich Foray
Sept. 11 – 14 Joliette, Quebec

Accommodations are in the Hotel Chateau Joliette (46 miles from Montréal, on the north shore of the St. Lawrence River). About 400 miles (6 hours) from Nassau County. Maximum number of participants: 180

Details are promised to be posted April 1, 2020 on the CMM (Cercle des Mycologues de Montréal). They report that they are monitoring the COVID-19 situation but no cancellation is presently in effect. Check for updates at: https://mycomontreal.qc.ca/. Also check:
https://www.nemf.org/2020/01/10/nemf-2020

2020 Annual Wildacres Regional Foray
Sept 24 – 27 Wildacres, North Carolina

Held at Wildacres Retreat, a conference center on 1,600 acres in the Blue Ridge Mountains, the foray is limited to 40 NAMA members. Priced at $265 per person, double occupancy (no single rooms) for food and (3 nights) lodging. Chief Mycologist is Dr. Andrew Methven, University of Tennessee.

Registration is now open. Early registration is advised. An application form may be downloaded by accessing https://www.namyco.org/wildacres_foray.php

For more information and to register, contact Glenda O'Neal by email glendakoneal@yahoo.com or by phone at 423-863-2742.

MO-NAMA 2020

PLAN AHEAD .... Mark on your calendar October 8-11 and make plans to attend the MO-NAMA2020, NAMA's annual foray for 2020. While detailed plans are being finalized, you can make your plans to spend the weekend exploring the hills of the Ozark Mountains. The event will be held at Trout Lodge, 72 miles southwest of St. Louis. We will have transportation available from and to the St. Louis Airport.

The Missouri Ozarks offer excellent mushroom habitat. The terrain can be described, geologically, as a broad dome, the most extensive highland area between the Appalachians and the Rockies. We'll foray in rolling hills interrupted by steep escarpments, traversed by meandering waterways and marked by caves. The forests include many species of oak, hickory, walnut, red pine, and cedar.

Our chief mycologist will be Andy Methven, who is MOMS (Missouri Mycological Society) beloved Chef Mycologist. Other speakers and workshop leaders include Tom Volk, Britt Bunyard, Arleen and Alan Bessette, Rachel Swenie, and Rose Tursi, with more to be announced soon!

Trout Lodge itself has a rich and diverse history. The land originally was settled in 1904 by a Parisian who had traveled to St. Louis for the World's Fair. The stream which runs through the property was used for raising trout and to power a sawmill. Over the years and through various ownerships, the land was expanded to include 52,000 acres and a 360-acre lake. Today, Trout Lodge is a branch of the YMCA of Greater St. Louis. The resort is beautiful, with lots of amenities of interest to all, including children. Lodging is way above average, and the food is excellent.

For mycology experts to beginners, this year's NAMA foray assures adventures and fulfilling times for everyone. Also, don't forget to spend some time in St. Louis, a city with excitement for all. Whether it be sports, arts, history, or relaxation, you can find a place to celebrate fall in Missouri. You must be a current member of NAMA to attend. More to come in future publications.

Questions? You can contact either Sam Landes at treasurer@gamushroomclub.org or Maxine Stone at VeryMaxine@aol.com

GREETING AND CORONDOLENCES
from Barbara Ching, NAMA President

April 14,2020

Hello Mycophiles,

Although all of us may be seeing signs of spring, most clubs won't be organizing forays as usual. But many clubs are holding events remotely through Zoom and other virtual meeting platforms. *Please share your creative adaptations with The Mycophile* so that we can support each other and our clubs through this challenging stretch.

Consider nominating one of your fellow members for the Contribution to Amateur Mycology award or the Harry and Elsie Knighton Service award; here's the information: **https://namyco.org/mycophile.php**. We are extending the nomination submission date until June 1.

Finally, to get more mushrooms in your socially-distanced life right now, I invite you to get more involved in NAMA. Every one of our committees would benefit from new members and every NAMA-affiliated club benefits from having members involved in NAMA. Check out your options here and let me know where you'd like to see your name: **https://namyco.org/committees.php**. For that matter, if there's a mushroom-related committee you'd like to start, tell me about it at **president@namyco.org**.

Courtesy of Joel Harmon

For those of you who take cold comfort schadenfreude, I will sign off by telling you that in my part of Iowa, it is snowing RIGHT NOW, and it snowed yesterday and the day before.

Cover Photo: *Morchella americana* by Robert Gergulics, Open Pictorial 3rd place

Mushroom Art – Voyeur's Edition

By Howard Goltz

I love photographing mushrooms, mostly for pleasure, and as a way of recalling some of my favorite places and "findings" in the woods. Up here in Minnesota it's still a bit early for that activity and combined with the last few weeks of self-sequestering, I've been spending more time than usual checking out mushroom photographs on the internet… too much time according to my spouse. Maybe it's my way of further deferring work on that long list of things I promised her I'd take care of when I had the time. In any case, to make the most of my squandered time, and to save you some too, I thought I'd share some of my favorite mushroom photography websites and Facebook groups with you, along with a few photos and a bit of editorial comment.

2019 **NAMA** First Place Open Pictorial:
Mycena interrupta by Mark Bower

I'd be remiss if I didn't start with the **NAMA website** which currently features the award-winning photographs from eleven years of our annual photo contest. It has categories for documentary, pictorial and judge's option, as well as for separating previous winners from newbies. Get your mushroom photos ready to enter soon – usually in June. Thanks to John Plischke III for running this contest for as long as I remember.

Many of NAMA's affiliated clubs conduct annual photo contests and feature their winning photos on the websites as well. Their websites are listed on the NAMA website under "Clubs."

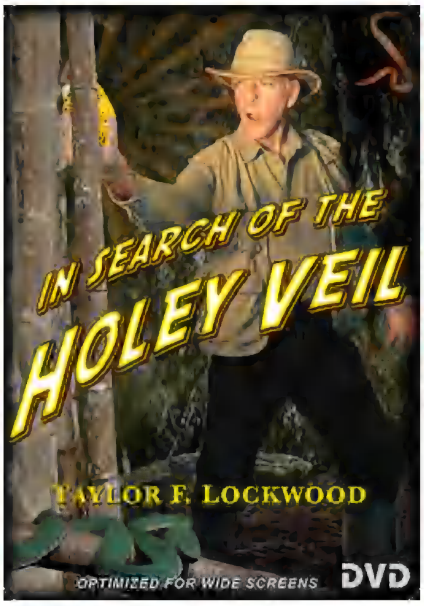
Most of you undoubtedly know of Taylor F. Lockwood, professional mushroom photographer, author and producer of DVD's featuring his forays. Take a "worldwide trip" and explore his website, Mushroom. Pro, which includes what seems to be thousands of excellent mushroom photographs, all referenced in his index of scientific names.

They may be tiny, but don't overlook the beauty of *Myxomycota*. While not fungi, NAMA still allows slime molds to be entered in their annual photo contest. One of the best Facebook sites to learn of them and see their intricate beauty (Slime mold beauty, in the eye of the beholder?) is **Slime Mold Identification and Appreciation**. Macro photography at its finest.

2019 **Minnesota Mycological Society**
First Place *Schizophyllum commune* by
Marjie Carr-Oxley

Tricholomopsis rutilans
by Hanzi **Mushroom Photography**

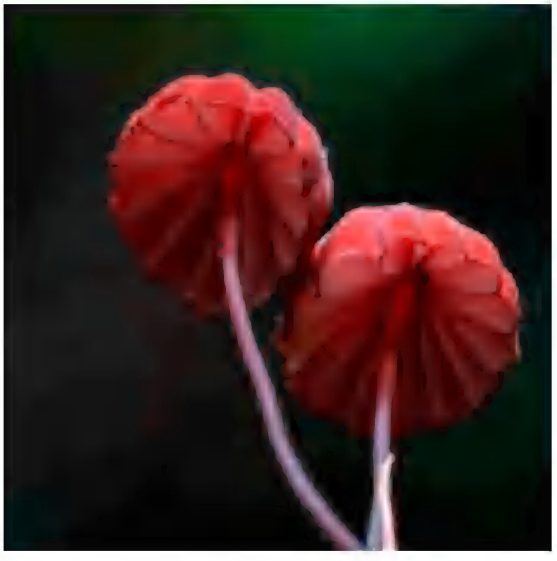
Lichens, Mosses, Ferns, and Fungi is a Facebook group that brings you into the "borderline" world of lichens, the mutualistic composite organisms that are part fungi and part algae. Photos on this site are from around the globe.



Taylor Lockwood's images are licensed, but browsing his website is open, educational, and beautiful.

A Teloschistes and *A Ramalina* by Wallace, Australia

Arcyria denudata by Harz



Professional mushroom photographer Stephen Axford is from Australia. He's one of the Admins for the Facebook site, **Fungi Fetish**. The site is international and open to the public, but often features his work.

If you want to travel the world (of mushrooms) while remaining sequestered behind your computer, there are many Facebook groups that focus on specific countries or regions. It's also a chance to foster worldwide friendships. Through Facebook, I've become "friends" with mushroom enthusiasts, novices to professionals, from South Africa, Brazil, Italy, Greece, Australia, Japan, and Great Britain. Don't let language be a barrier, as Facebook has an instant translator feature. Plus the photos are universal.

***The Mycophile*'s Mushroom and Fungi Photography Group, Photogenic Fungi – the Art of Mycography** and **Mushroom Photography** are Facebook groups that focus on the "esthetics" of mushroom photography, but the postings sometimes lack the photographer's or mushroom's name. The photos are still enjoyable.

Enjoy your vicarious visits to the world of fungi on the internet, don't work too hard, and take care.

Howard has been NAMA's Secretary for the last 5 years and conducts the Minnesota Mycological Society's annual photo contest. He prepares periodic articles on "Mushroom Art" for *The Mycophile*.

WPMC Assists AGH Doctors with Toxicology Research

By Cecily Franklin

On November 1, I was contacted by Dr. Matthew Stripp, Director of Toxicology at Allegheny General Hospital (AGH), regarding an ongoing toxicology research project in the hospital's Department of Emergency Medicine. The purpose of the study was to evaluate the accuracy of responses being provided to those who seek emergency identification of mushrooms through social media. WPMC had been recommended by the director of the Philadelphia poison center.

According to Dr. Stripp, healthcare providers are hesitant to accept information or identification from social media, in part because of the limits in ensuring adequate credentials on the part of those providing the information. AGH's research hoped to determine whether "verified experts" agree with the information provided to people online.

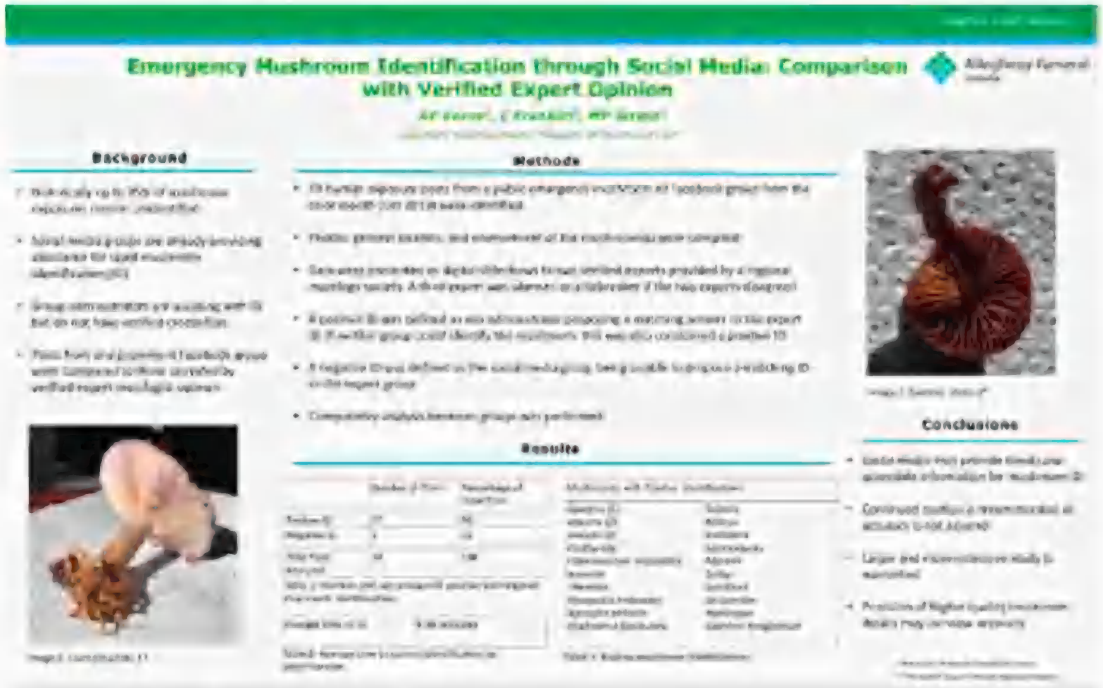
Dr. Stripp requested that WPMC have two experts independently review 30 case photos, with a third expert acting as a tiebreaker in the event of disagreement. WPMC Mycologists **John Plischke** and **Garrett Taylor** agreed to participate, and WPMC Past-President **Richard Jacob** served as the tiebreaker. We were not told of the identifications that had already been made on social media.

In addition to Dr. Stripp, we worked with Dr. Abigail Kerns, Emergency Medicine Resident at AGH, who sent us the photos. Our assignment proved to be quite a challenge, since some of the photos were of such poor quality that no identification could be made. In some cases, there were multiple species in the same photo! But our three experts ultimately made their "best guesses" and I summarized them.

Dr. Kerns then compared our identifications with those from social media. Of the thirty photos posted on Facebook, 27 (or 90%) resulted in a positive identification. A positive identification was defined as any administrator proposing a matching answer to the verified expert identification. Complete lack of identification was considered positive if matching between groups.

AGH submitted its abstract to the American College of Medical Toxicology on November 15. Since then, it has been accepted for presentation in March, when a poster will be presented at the ACMT Conference in New York City. AGH also plans to submit a formal paper based on the work. Dr. Stripp expects to find significant interest among the medical toxicology community on this topic.

"Thank you so much for assisting us with this project! We really appreciate the efforts put forth by the Western PA Mushroom Club! We hope this will help open up a new area of research that has been under-examined to date. I hope that we can continue ongoing collaboration."
Matthew Stripp, MD



THE TRESPASS

By Steven King

That morn the woods rebirth was on
As Hank slipped out for the search.
A warm night rain was the harbinger
For hope and his annual yearn.

His quest not simply intuition, tho
While mum most always guards a patch,
This tidbit had fell from neighbor Sam:
Morels were up out by the fence!

In school the two had jousted
For the hand of Jill,
Sam, the round ball hero,
And Hank, a farmer's son.

When Sam went off to college,
Too slow, too low to play that game,
Twas then that Hank finessed his moves,
And Jill his wife became.

Single Sam returned to town,
With his habit to hug Jill too long,
And a jealous rancor simmered
For many years long gone.

At the local diner just last eve,
The hug-of course-and a stage-whisper. . .
"Morels are up by the great dead Elm."
(Near the fence that marked their lands.)

So Hank went there that springtime morn,
Aaaah, yes! The edible fungi. . .
Scattered around across the ground,
Just beyond the split rail fence.

No one to see, he made the leap
Onto the land of Sam,
He knelt and commenced the gathering
In a mesh bag brought along.

Delighted eyes spent on the ground,
A rapture captured Hank.
The great dead Elm that arched above
Was oblivion to him.

A sweet last thought occurred to Hank,
Of his love for life and wife,
He would bring those mushrooms home to Jill
For a very special lunch.

Yet a violent fracture split the air!
Too late he knew the limb
That crushed his skull and freed his soul,
Hank found the promised land.

The widow was in need of solace
After a proper day,
Sam was there to fill the void
And sooth her in the night.

Comfort food was called for. . .
Good steak, some local wine,
And a day-old mess of fine morels,
In a mesh bag brought along.

For sure, in diners and the parlor rooms,
There was murmured speculation.
The small town sometimes pondered,
How it was what brought Hank down.

Death by falling limbs, they knew
Is a long-odds proposition.
Was it accident or evil act. . .
Grounded in pure passion?

Still, Sam was a local legend,
Revered for the round ball game,
Exploits retold of glory old
As only Hoosiers may.

So the sheriff put it all to end,
With a simple observation:
"Well, whatever else, you know,
Hank had been trespassin'."

When you go out hunting,
For the mystical morel,
Abide this simple moral:
Be where you legally can.

And know. . .pursuits of purpose meet a line
In certain of life's steps.
Who stands where when that comes to bear
Is an over-arching test.

The author is a mostly-retired Indiana trial court judge and lives in La Porte County, Indiana, where he grew up in the wooded village of Haskell. He swears there are no morels there.

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2019 NAMA Photo Contest Winners

The Mycophile presents the final group of winners of the 2019 photo contest in the Pictorial category. These photos are beautiful shots are of fungi, looking undisturbed in their natural setting.

Open Pictorial Honorable Mention
Chlorociboria aeruginascens by Mark Bower

Open Pictorial Honorable Mention
Mycena aff. epipterygia by Mark Bower

Open Pictorial 1st Place
Mycena interrupta by Mark Bower

Open Pictorial 2nd Place
Aseroe rubra by Mark Bower

Open Pictorial Honorable Mention
Lichenomphalia umbellifera by Richard Tehan

Book Review:
Fungi of Temperate Europe

Thomas Læssøe and Jens H. Petersen
Princeton University Press (press.princeton.edu)
https://press.princeton.edu/books/hardcover/9780691180373/fungi-of-temperate-europe
ISBN (two-volume set): 978-0-691-18037-3
(hardbound, 7.5 × 11.5 in., 1715 pp.)
$145.00

If you don't have time for reading, here's the bottom line: anyone who has an interest in mushrooms should own this (actually these) big amazing book(s), regardless of whether you live in Europe or not. Although not cheap (price recently increased from $110), you get a heck of a lot for the money (11.5 lb!). If you do have time for reading, I'll explain why you should have it.

The late Harley Barnhart once opened a review of a marvelously illustrated Japanese mushroom book by stating "After 20 years of effort and God knows how many dollars, I thought once that I had become a pretty fair photographer of mushrooms. Last week this book arrived and, for a time, I had to fight the urge to burn all my slide files and start over." At the time, my own photographic skills were not terribly advanced. But now, 30 years later, I know just how Harley felt. Jens Petersen is, quite simply, the best all-around mushroom photographer there is. But the quality of the photos is just one humbling aspect of these sizable volumes — I thought I had seen a lot of different mushrooms and knew the names of a lot of genera — now I know better.

I could also relate to the thoughts expressed in the Preface: "'I am lost — I cannot fathom nature anymore ... ' exclaimed one of the authors to the other after having experienced parts of a forest completely devoid of fungal fruitbodies bordering other parts with thousands. The longer you are in the game, the more you realize how little you understand. We have now been engaged in mycology and fungal identification for more than 40 years and a synthesis of our combined experience would seem desirable. It would have been easier if mycological knowledge had stabilized and many of the problems had been settled. Instead, we experience a period with constant change and much confusion. Our ignorance still appears to be monumental ... Nevertheless, we hope that the concept applied in this publication will help the enthusiast to better understand the complexities and not feel completely at a loss when faced with an unfamiliar fungus."

Thomas Læssøe is a mycologist and senior researcher at the Natural History Museum of Denmark. He has previously been a senior scientific officer at the Royal Botanic Gardens, Kew and associate professor at the University of Copenhagen. He is the author of several guide books, wrote most of the text, and contributed many photos. Jens H. Petersen is a mycologist, graphic designer, and photographer and he provided the majority of the books' photos as well as the "wheels" and also did the design and layout. He taught mycology at Aarhus University for more than 20 years and is the author of The Kingdom of Fungi (see *The Mycophile* July-August 2013 for two reviews). Petersen and Læssoe also created the online identification tool MycoKey (www.mycokey.com).

Following the Preface and Acknowledgments, the introductory material is covered in about 25 profusely well-illustrated pages. Topics include Scope and Design (of the book), answers to the

question, Why Study Fungi?, a biological and ecological overview of The Fungal Kingdom, Fungal Biogeography and Habitats, sexual and asexual reproduction, how to collect and study mushrooms (I use that term in its broadest sense, including VERY tiny cups, etc.) macroscopically and microscopically, and even a brief introduction to the use of DNA sequences. Over 1600 pages later, 370 Literature citations, Index (an index to that volume's genera is also included on the endpapers), Glossary (a shorter version — Often Used Terms, is included on an endpaper in each volume), and Photographer credits complete the coverage. Now for the in-between ...

Usually I like to do my own species count when preparing reviews but there are only so many hours in a day so, for this one, I'll take the publisher's word for things: "Featuring more than 7,000 photographs, this lavish two-volume set treats more than 2,800 species of fungi across the region." Wow.

The species are presented in about 80 "form groups," each starting with an innovative comparison "wheel." Many of the groups are ones seen in pretty much every mushroom guide — such as gilled mushrooms, boletes, chanterelles and morels — but there are others that other books rarely or never include, such as cyphelloids and hysterioids, which stretch even my broad definition of "mushroom." Hence the use of "Fungi" in the book's title. A large number of the species are things you will never see other than in the pages of this book. And how Petersen and others have found so many extremely tiny things is beyond me. Paging through the two volumes will provide one with a pretty complete sense of the extraordinary diversity of the macrofungi and near-microfungi.

The wheels (see example) are an effective way of summarizing key information (ecological group, substrate, spore and cystidia shape, general macro appearance) for large numbers of groups, be they genera or otherwise. A recent reviewer claimed that they represent keys that you work from the inner zone outward. But I don't see how they could work that way — who first looks at cystidia before the overall appearance? But they do allow you to see at a glance, for instance, what makes a hydropus different from a hodophilus. The authors have generously made all the wheels available as a large (~180 MB) PDF file at **www.mycokey.com**. Large printouts of them would be excellent additions to mushroom displays at forays and exhibits.

Each set of species is introduced with its wheel, which includes page references to the (usually) genera. Species are listed by scientific name, but without the author (I wish those would have been included). Common names are not used, probably because the book was originally published in Europe (in Danish, as *Nordeuropas svampe*) with an intended audience in many countries with different languages and, thus, different common names. The species treatments are all in running-text form, rather than the typical categorized (cap-gills-stem-edibility-etc.) description as the authors rely on the photos to convey information more effectively than words often can. The text typically mentions the key identification characteristics, ecological occurrence, distribution and abundance, and a look-alike or two, using a coding system to indicate whether or not the mentioned species is treated in the book and, if so, in which direction you proceed to find it (up or down on same page, one page forward or back, or multiple pages forward or back). Occasionally a synonym or misapplied name is mentioned. The best edible and most dangerous poisonous species are indicated by green and red symbols; otherwise, edibility is not mentioned. At the top of each page is a helpful nutshell description of the group of species treated on that page, for instance, "dry brownish tricholomas" and "collybioids with cabbage-like odour or rooting."

The photos are, for the most part, absolutely superb and are of generous size so that details are visible, reducing the need for a lot of descriptive verbiage. Occasionally there's an ordinary one and occasionally the color is exaggerated or not quite accurate, but even those are of at least good quality. In addition to the aspect shots, there are lots of inset close-ups of gill edges, marginal hairs, surface textures, etc. It took a lot of forethought to have taken all those photos — only a committed teacher would have done it. The Volume 1 photos are impressive enough, but they show mostly relatively large fungi — gilled mushrooms and boletes — and we're used to seeing good-quality pictures of them in other books. Volume 2 is where Petersen's talent really shines. Some of the photos here, particularly of tiny ascos, are simply amazing. I'm accustomed to seeing scale bars in photos measured in micrometers (µm), but those photos show spores, cystidia, or other parts of mushrooms, not the entire fruitbody. As good as Harley's photos

of tiny slime molds were for their time, they would be no match for what can be done shooting through a dissecting microscope and stacking individually-focused exposures into a single stunning image using computer software.

No book is perfect so, of course, I have a few nit-picky things to mention. There are far too many typos. It would have been nice to have more "also known as" mentions, given the name shuffling that many of the species have experienced. For my taste, far too many of the treatments begin with statements like "*Tricholoma ustale* is a medium-sized, sticky to slimy *Tricholoma* … " — we don't need to be told it's a tricholoma, its name already told us that. The number of words that could be deleted then could have been used to add the authors to the species names. In many cases, the comments suggest that the species should be easy to identify. Perhaps true for Læssoe and Petersen with their combined 80+ years' experience and perhaps true once one figures out what genus the thing is in, but that latter task will often be difficult (especially with the small cup fungi where genus-splitting has run rampant), even with the helpful aids provided. But these are minor quibbles.

So, a huge European book with lots of beautifully illustrated species — but how useful might it be for identifying mushrooms in North America? Not nearly as much as for Europeans obviously. Certainly many of the names are ones I recognize as being applied on this continent. But, with each year, we find that more of our similar-looking species actually are different enough to deserve their own names. Even with that caveat, however, finding a very similar species in the book will at least put you in a relatively small ballpark and, for many of the tiny fungi in this book, you won't be able to do that with our current guides. However, even if none of the species occurred in North America, the book would still be greatly valuable as a coffee-table denizen that you could page through bit by bit and provide lots of armchair foray opportunities. As I said before, you will see things here that you will never see anywhere else.

Anyone who has an interest in mushrooms should own this (actually these) big amazing book(s), regardless of whether you live in Europe or not. Although not cheap (price recently increased from $110), you get a heck of a lot for the money (11.5 lb!).

Steve Trudell

The Mushroom Culinary Arts Corner

A Delicious and Healthy Mushroom Recipe:

Bird's Nest Pasta With Mushrooms in Wine Sauce

By Salma St. John, committee chair and NAMA Vice President

If you eat wild mushrooms frequently, like me, a novel healthy recipe would be welcomed to add spice your culinary endeavors.

One of my favorite mushroom dishes, which I am sharing with you today, is bird's nest pasta with mixed wild mushrooms in wine sauce. I came up with this recipe years ago, and it is still a mouth-watering hit every time I make it, especially when I entertain friends.

When I am cooking with wild mushrooms, I try to avoid heavy creams and butter. I prefer to keep my cooking – as you probably know by now –healthy, simple, and elegant. Mushrooms provide us with a bounty of health benefits, so there is no need to add unhealthy ingredients; that would be defeating the purpose.

The true heroes of this dish are the beautiful, healthy spices such as fennel, paprika, rosemary, bay leaves, oregano, and turmeric – yes, turmeric, which is an incredibly, powerful spice/root. As my mother used to tell me, "spices are the soul of the food".

Again, at MCA, we have a new approach to food, we call it healthy gourmet, where good health is never sacrificed for incredible taste; the two are in perfect harmony. This also includes healthy cooking techniques and cookware.

Without further ado, I present you with my recipe and I hope you all enjoy it.

FOR THE PASTA:

Ingredients:

4 bird's nest pasta portions (for 4 people)
1½ Tbsp. extra virgin olive oil
3-4 thick slices of red onion
A clove of fresh garlic cut in halves
1¼ c. vegetable broth
Two Tbsp. white wine (such as Cabernet Sauvignon, Pinot Gris, or Chardonnay)
¼ tsp. tomato paste
½ tsp. salt
1 tsp. black pepper
1 bay leaf
½ tsp. ground fennel
½ tsp. paprika
½ tsp. rosemary
¼ tsp. oregano
⅛ tsp. ground turmeric

Method:

Place the vegetable broth in a measuring cup (for easy pouring) and add the tomato paste, wine, salt, pepper and the rest of the spices and herbs (except the bay leaf) - stir well.

On low/medium heat, place the olive oil, bay leaf, and the sliced onion in a Dutch pan or a covered skillet (please, try to use stainless steel skillets instead of Teflon or non-stick cookware, except for ceramic).

Place the 4 Bird nests in the pan and cook each side for about 2-3 minutes (very carefully, use a spatula to turn the Birds' nest when the bottom starts to look golden brown).

Once both sides of the nests are golden brown, pour ***half*** of the liquid over the nests and cover the pan for 3-4 minutes or until the liquid is absorbed.

Turn the nests over and pour the rest of the broth in the pan not over the nests. Cover the pan and cook for about 3-4 minutes until there is just a little bit of liquid (check to make sure that the nests are tender and cooked al dente – don't overcook them).

Turn the heat off, let the nests sit in the pan for a few minutes until the sauce is made.

MUSHROOM SAUCE

Ingredients:

8 oz. cleaned and sliced Shiitake mushroom (*Lentinus edodes*)
¼ c. ***dried*** Porcini mushroom (*Boletus Edulis*) and another of Lion's Mane (*Hericium*) reconstituted in 1 cup warm water for 20 minutes (You can also use any combination of your favorite dried wild mushrooms – I use some dried mushrooms because they have a rich aroma)
2 Tbsp. extra virgin olive oil
½ c. thinly and finely cut red onion
1 large garlic clove, minced
1 Tbsp. minced/sliced black truffle (optional)
½ c. quality white wine (Sauvignon Blanc, Chardonnay, or Pinot Grigio)
1 c. of vegetable broth
1½ tsp. quality balsamic vinegar
1 bay leaf
1 tsp. sea salt
ground black pepper
¼ tsp. ground fennel
½ tsp. paprika
¼ tsp. rosemary
¼ tsp. ground turmeric
2 Tbsp. organic all-purpose flour
4 Tbsp. freshly grated Parmigiano Reggiano
(please, pay attention to "tea spoon" and "table spoon")

Method:

Set a Stainless Steel electric skillet to 325 degree (low/med heat) (a Dutch oven or a regular pot may be used on a low/med heat stove).

Place 2 tsp. of olive oil, one bay leaf and the onion in the pot and sweat the onion for 2 minutes until translucent.

Add fresh mushrooms (Shiitake) and sauté for 3 minutes or until liquid from the mushrooms is almost absorbed. Add the crushed garlic and stir for a minute.

Mix all the liquids in a large measuring cup (vegetable broth, balsamic vinegar, and wine).

Pour half of the liquid over the mushroom mixture and stir until liquid is absorbed.

Add the salt, pepper and the rest of the spices to the mixture.

Add the dried mushroom mixture and mix well.

Dissolve the flour in the remaining liquid. Add the flour and liquids mixture a little bit at a time while stirring (to prevent from forming lumps) until it has a creamy consistency.

Simmer for 2-3 minutes.

Add 2 Tbsp. of parmesan cheese. Mix well and let it simmer on low heat for 2-3 minutes– until the sauce thickens – it should be saucy, not too think or too thick. Turn the heat off (if sauce is too thick, add some wine or water to it and stir well while hot).

Place a bird's nest on a plate, top with ½ c. of the mushroom sauce and garnish with a table spoon of Parmigiano Reggiano. Serve it hot with a side of steamed asparagus.

This dish can be paired with any chilled white wine, such as Sauvignon Blanc, Pinot Gorgio, or Chardonnay.

HEALTH BENEFITS OF SHIITAKE MUSHROOM (*Lentinus edodes*)

This mushroom has been revered in Asia, particularly Japan, for its health and medicinal benefits. According to researchers, this mushroom has anti-tumor, anti-viral, and anti-bacterial properties. It is rich in many minerals and vitamins such as vitamin B and D. It also contains minerals such as Calcium, iron, manganese, magnesium, phosphorus, potassium, selenium, and zinc. It also has a decent amount of protein and fiber.

A RECOMMENDED BOOK ON THE BENEFITS OF SHIITAKE MUSHROOM:

"Health and Nutritional Benefits of Shiitake Mushroom: Revealing the Medicinal Secrets of Shiitake Mushroom". By Daniel Ross, Ph.D.

The Mushroom Culinary Arts Corner

To wash or *NOT* to wash, That is the *FUNGAL* Question

By: Salma St. John, Committee Chair

There is no doubt that the benefits of eating mushrooms are well established and recognized, not only for the delectable taste of such amazing creatures but also for their health benefits. But let us *not* ignore common sense when it comes to preparing and eating mushrooms. We all know that one should NEVER eat raw or unidentified mushrooms. Like many foraged foods, mushrooms may have insects and parasites that may cause sickness if eaten raw; therefore, they should be cooked well. But there is always a nagging question that remains: ***should mushrooms be washed?***

If you ask dichard mushroom enthusiasts whether mushrooms should be washed, the answer will be resoundingly "no" and they may add that mushrooms should be only lightly brushed to remove any debris. But what if there is more than just "debris" in the mushrooms such ants, bugs, or even worms, which can find a comfortable home and a source of nourishment inside the mushrooms? Of course, some of those creatures may be harmless, and as some may say, they are "extra protein", but if you are squeamish like me, you may think twice before welcoming such mortal souls to your unsuspecting stomach.

I decided to do an experiment. As a proud hunter, I came home one glorious afternoon with some gorgeous, nice-size morels. I immediately arranged my beauties on a plate and took a picture of them – as you see at left.

Looking at the mushrooms, I started to fancy some risotto cooked in truffle oil, Sauvignon Blanc, parmigiano, garlic, fresh herbs and, of course, some of the freshest morels. I turned on my Chopin music and without delay I got started on dinner. First, I wanted to wash my morels (remember, I am squeamish, and I don't need the extra protein). I filled a pot with two quarts of water and added ½ a cup of food grade hydrogen peroxide - diluted for "vegetable wash" according to instructions. The mushrooms were gently placed in the pot and enjoyed a nice bath. Five minutes later, I glanced

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at the mushrooms and saw the surface of the water covered with hundreds of little creatures that came swarming out of the mushrooms as if they just heard a fire alarm go off – as you see at right.

I decided to look at one of the insects under a microscope. When I focused on the creature, there was a feisty bug (put accurately, a worm) moving restlessly as if it was protesting against me examining it.

I watched the bugs march out of the mushrooms and float on the surface of the water in a rhythmical motion, as if they had just heard a Mariachi band playing. The show went on for almost thirty minutes until all the bugs finally stopped moving. At that moment, I pronounced them "lifeless." I them rinsed the mushrooms in water a couple of times, drained them well in a colander, placed them on a paper towel, and placed them in the fridge for a an hour or so before I used them.

So to answer the question: washing may not be a bad idea, especially if the mushrooms are not very fresh or look older. However, you may elect not to wash, or do the experiment yourself - then you will know whether "to wash or not to wash."

By the way, washing the morels, did not affect the integrity of the mushroom! Also, the Risotto was *delicious!*

THE MYCOPHILE

Newsletter of the North American Mycological Association

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PRESIDENT'S MESSAGE

Barbara Ching, NAMA President

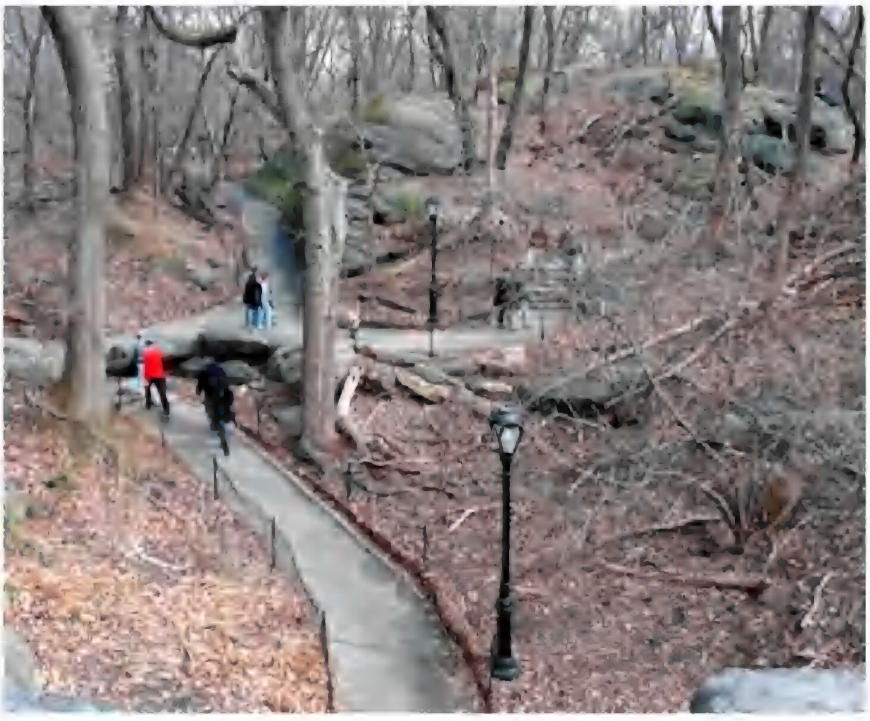
Hello Mycophiles,

I hope you are enjoying some time in the woods, or at least some time out of the house. Despite the sadness and disappointment of our canceled annual foray, we will foray together again! An announcement about next year's fabulous, fungiful location will be coming soon; we're finalizing a contract as I write. Coming even sooner will be announcements of some virtual presentations and workshops.

Every time you hear from me, I ask for volunteers and engagement. Many of you attend our annual foray regularly, and many of you hope to attend when possible. You read *The Mycophile*. The unanswered calls for volunteers tell me that you are happy with this level of activity. There is no real purpose to our lengthy list of committees and regional trustees if people do not want to participate in them. Year after year, these sections of our annual reports, required by law to maintain our status as a non-profit organization, show very little to report and very few new members of committees.

COVID 19 has made a lot of our favorite fungal activities more difficult, if not impossible, so this year the scanty reports may make more sense. To put it more optimistically, we can take this occasion to decide whether to focus more intentionally on forays and *The Mycophile* and let the rest go. **If I'm wrong, speak up and step up now.**

As we come out of quarantine, I would also like to know your reflections on the issues of equity and equality that are engulfing the US and Canada and how NAMA and our local clubs can address them. Do you remember your first foray with a mushroom club or your first time to show up at a mushroom club meeting? What made you feel welcome? What might have made you hesitant to take a walk in the woods with relative strangers? How is our current climate different for better or worse? How can we do better? We must do better. Again, it's time to speak up and step up. Very literally, our shared future depends on it.



COVER PHOTO by Michelle Torres-Grant. Documenting mushrooms in the field with timestamp and GPS location.

FORAYING IN THE TIME OF COVID:
OPTIONS AND IDEAS FOR NAMA-AFFILIATED CLUBS TO KEEP IN TOUCH WITH MEMBERSHIP

Foraying in 2020 is not like years past with the COVID-19 pandemic interrupting many plans. Several states have social distancing rules and group size limits in place, making it nearly impossible for most traditional forays to take place. These new rules have inspired NAMA affiliated clubs to connect with their membership in new and creative ways, using assorted social media and meeting platforms. Upon reaching out to clubs, I was amazed to see the creativity and ideas put in motion to continue the education and entertainment of members. The mycological community is coming together in new ways to interact and make future plans for member engagement. I hope this sharing of successful methods of keeping in touch with club members will inspire more NAMA clubs to bring forth an age of enrichment for both mycological students and presenters, even when things get back to "normal." I would like to thank all of the club presidents, webmasters, and program directors who answered my call for engagement and who contributed to this inspirational piece.

-Karen Monger, *Mycophile* Editor

CASCADE MYCOLOGICAL SOCIETY (CMS)
Eugene, Oregon, Sandy Patton, Webmaster

CMS has done two virtual meetings thus far. The first one was via a Zoom Webinar (requires a Zoom webinar license) in conjunction with Trent Blizzard of Modern Forager. For the second one we only had the facilitator (me), Club President, and the speaker on Zoom and live streamed to YouTube. Viewers could ask questions via the YouTube chat feature.

Here are the two that CMS has done:

Oregon Burn Morels with Trent Blizzard - Advertisement on webpage. Video on YouTube

Richer than Gold: Biodiversity vs. Industrial Mining with Dr. Roo Vandegrift - Advertisement on webpage.

FYI, I can envision using Zoom after we are able to meet in person. Chris Melotti (our speaker coordinator) could invite a speaker located anywhere in the country to give a talk. A laptop and projector is always required at our meetings anyway. Just install Zoom and the speaker can be anywhere. Gather for the meeting. Bring up the Zoom meeting with your presenter and display it with the connected projector - most projectors also have built in speakers.

You can also live stream in person meetings to YouTube or Facebook. Or record it and upload to YouTube or the clubs website afterward. We have tried doing some live streaming with cell phones in the past, but the lighting is always bad. With Zoom, you are livestreaming the presentation that is on the computer, so no lighting issues. In this case, a wireless microphone tied into the computer may be needed for the speaker to get higher quality audio.

Some other ideas that I am thinking about, but have not done yet:

A "virtual mushroom foray" *for members only*. This will require the Pro Zoom license. A Zoom meeting will give members the opportunity to see each other online, while live stream to YouTube meetings are only about seeing the speaker. This would be about sharing pictures of mushroom finds - but will take some effort and cooperation to pull off. I will let you know if I am successful.

Using Zoom to teach online mushroom classes. The only drawback is the students will not be able to feel and touch any real mushrooms. But, an online environment is a "dream" for the teacher because now they can have a script - no forgetting to say that one important detail. It is also a great platform to be able to easily record classes and make them available to other club members at any time. ◆

NORTH IDAHO MYCOLOGICAL ASSOCIATION (aka North Idaho Mushroom Club)

Tim Gerlitz, Educator

I appreciate you reaching out to the clubs. We have remained virtually active during the spring 2020. At any time, we have 150 to 200 members of our club. We meet April, May, June, and September, October, and November every year. Our club meetings are typically held at a local library that can handle our crowds. We have educational programs at our meetings, guided identification outings in our local forests, and several potlucks each year. However, the COVID crisis closed our meeting space and with restrictions in place and of course for safety, we have not met in person this spring.

Instead, we have remained very active on our club Facebook page. Our Facebook page is open not only to our club membership but also to the general public. Several weeks ago, during our regularly scheduled May club meeting, I decided to launch a Facebook Live event and present our spring mushroom PowerPoint program using that technology. To my surprise, over 5,000 people watched the presentation live, a reflection of our 6,500 Facebook page followers.

It appears the program was well received and it remains a viewable video on our Facebook timeline and has continued to rack up 1,500 additional views. Interestingly, our club membership has paid a prorated membership fee this year, but with our Facebook live videos the general public from all over the world Who follow our Facebook page has offered to financially support our educational efforts by becoming remote members. This is opening up an interesting avenue for us. Recently we have had several poisonings in North Idaho and for the June meeting, we are presenting information on poisonous mushrooms of the area and emphasizing safe mushroom collecting. We anticipate a large online crowd for that venue also.

If things improve in our country, we may meet in September but will wait until we are closer to make that decision. In any case, using the Facebook platform to communicate with the public and our club members has been very successful and we will likely continue to do this. We have had a number of people who are elders and some who have disabilities who are challenged to make club meetings and they have strongly recommended that we continue to provide Facebook Live streaming for our educational programs so they can attend and enjoy the events as well.

If anyone would like to contact me regarding the software I use for Facebook Live, or our marketing approaches, I would welcome that contact very much. Hope all well, Tim Gerlitz timgerlitz@gmail.com. You can find us on Facebook by searching for the North Idaho Mushroom Club. Let me know if you have questions or would like clarification on any of this. Take care Karen and hope you and your family are doing well during these times. ◆

CONNECTICUT WESTCHESTER MYCOLOGICAL ASSOCIATION (COMA)

Joe Brandt, COMA President

Last week, our club used Zoom for the first time. It was for a presentation by Bill Bakaitis, entitled *Morels with Reference to Habitat and Abandoned Apple Orchards*, and my observation was that it was nothing short of a "howling success." The program was hosted by our email bulletin editor, the ever-resourceful Stephanie Scavelli, and it could not have gone more smoothly. We had approximately 50 participants (this was an evening program), and Bill spoke throughout the photo presentation (a live image of him appearing in a box at the lower right of everyone's screen), taking questions at intervals, and culminating with a general "Q&A" session. The entire event took about two hours, and people could come & go as they pleased, without causing interruption. With the success of this under our belts, we have at least two more programs (to be done with Zoom) "in the pipeline."

As far as outdoor events go, COMA will try resuming (very limited) weekend walks at the end of May, many of which will be on property that is not State or County-owned. We will have health and safety measures in place, and small groupings, as well as "social distancing" within groups, will be strictly enforced. Masks will be mandatory, and gloves will be required for anyone wishing to examine collected specimens. There will be no sharing of food after walks (which is

our usual M.O.) , and all events will be "members only," no guests. We fully expect that we will have to cancel some walks, and members have been advised that all walks listed on our schedule are tentative, and subject to change or cancellation. (Members will be kept updated via our regular email bulletins.) If we find that it is impossible to provide a reasonable degree of safety, as well as maintaining compliance with local and/or State regulations, we will cancel walks "for the duration." As of this writing (5/25), we have no plans in place to do a "live" foraging walk via Zoom. ◆

SOUTH SOUND MUSHROOM CLUB

Rachel Friedman, President

The South Sound Mushroom Club, located in Olympia, Washington has had great success over the past 2 months with online member meetings using Zoom. All of our presenters have been using powerpoint presentations. Our meetings in April and May have been well attended with attendees actively engaging with the presenters using the chat function. In April, as our season was beginning, Melodie Gates, club Treasurer, gave a presentation on safety in the woods and how to find morels. Lauren Re, from the Evergreen State College, followed with a presentation on how to identify morels and false morels. In May, Mike Zirpoli, also from the Evergreen State College, gave a presentation on morel cultivation. Our meetings were attended not only by our club members, but we had folks from other Washington clubs, as well as from other states. We have been keeping members informed and engaged with a monthly newsletter that we offer to have them send out to spread our word. In addition, our executive committee members have been reaching out to other clubs to collaborate and share knowledge and build ideas. We will be considering continuing to meet via Zoom through the summer and hope to be able to get back together in the fall. ◆

PIKES PEAK MYCOLOGICAL SOCIETY

Colorado Springs, Alyssa Hartson, Secretary

Our club has adapted quite well to the COVID crisis. Our first club meeting on April 22 was broadcast live via Zoom/YouTube. Our club VP, Jennifer Bell, presented "Safety in the Woods" and club President, Ben Kinsley, presented "Mushrooms of Colorado." It went very well and we had a lot of viewers. We advertised it beforehand on Facebook, and sent out 2 email campaigns to members.

Our next meeting on May 27th will also be broadcast live on YouTube at 6:00 pm MDT. Our club newsletter editor will be presenting.

We will be hosting a field learning/community clean up event on June 6. For this, we are limiting groups to 8 people per board member. Board members will lead their group and talk about the area, the plants, trees and terrain and the kinds of mushrooms that can typically be found with each. It's been dry as heck here so not much fungi to be found yet this year, but we wanted to do something for our members! A mask will be required and each attendee will adhere to the 6' rule. We are using signup.com for members to sign up to attend.

We've been active on social media and communicate regularly via email with members. We've been updating our website with blogs and videos as often as possible to keep people interested and engaged.

We had our board meeting yesterday via Zoom, but will be transitioning to Google Meet soon. ◆

BOSTON MYCOLOGICAL CLUB

Susan Goldhor, BMC President

We have been doing Zoom programs since late April. We purchased a Pro Zoom subscription which allows co-hosts. Our first speaker had her own Zoom subscription; our second one used ours, which worked well. The subscription is not prohibitively expensive. (under $30/month). We paid the first speaker an extra $50 to purchase a temporary increase in audience size, which turned out to be needed (170 members clicked the link, perhaps because the program was on psychedelics); however, for the next speaker it was not needed. We recorded (or the speaker recorded) both talks and they're on our website for members only. This turned out to be great for those who missed the talk or those who want to

watch it again because they didn't get it all the first time around. We would not hand it out to other clubs; that's for the speakers to do, if they wish. It's also been a boon for members who couldn't get to our programs at Harvard; at least one older member who lives outside the Boston area and no longer drives at night, was planning to leave the club, but told me that she was staying on because Zoom made it possible for her to attend the talks. In fact, Zoom has been such an addition to the portfolio, that I'm sure we'll continue to use it even when we can get together; probably a mix of in person and Zoomed programs.

We've cancelled live programs (Harvard has closed the building in which we meet, but we would have cancelled anyway) and walks, since we can't quite figure out how to do a socially distanced walk and ID session. On the other hand, we have lots of members, including new members eager to learn about fungi, so we're feeling the need to feed that hunger via Zoom. Three of our members are going to try to film a walk where they ID specimens and show habitat. iPhones are making this kind of thing possible. A few of our young, more social media-conscious members are working on a club Facebook page, which they've been eager to try and which will supplement our Google group. The Google group is mostly used as an ID place for newer members to show photos and ask for identification assistance. I'm interested in hearing what other clubs are doing to fill the vacuum created by social distancing.

I use email as a way to keep in touch with members, and I send out chatty missives with URLs of videos, articles, etc. of interest. At least some members really appreciate this and they keep me supplied with what I've missed. It's my way of talking to the membership and especially important during this tough time.

Every year for many years we've offered a series of 4 or 5 classes, especially for beginners. These give the basics of how to forage, what to look for, identification, etc. Also, one wider ecosystem talk. There's always been a fee for these (usually $25 for the series). We plan to offer these to our newer members via Zoom this year, at no charge. Our big concern is that for many members the walks are the draw, and we won't be able to hold them. So we do want to give our members as much as we can to try to fill in at least part of the gap. We're really trying! ◆

MYCOLOGICAL ASSOCIATION OF WASHINGTON DC

William Needham, MAWDC President

The cessation of social activities that began in March imposed significant restrictions on all NAMA affiliated clubs, and Mycological Association of Washington DC was no exception. If anything, the situation in the Washington DC area is more dire than most as it is one of the nation's "hot spots." Monthly meetings that were in a Montgomery County Maryland public library were not an option for the foreseeable future. After skipping the April meeting, the board met and decided to attempt an on-line meeting using Zoom. It was agreed that a local presenter would be best for the first attempt. The subject was "Edible and Inedible Mushrooms of the Kingdom Fungi" by the club president. It was a resounding success with about 70 participants (out of over 500 members) and no significant technical issues. The imminent June Zoom meeting (I couldn't help that) will be on marine mycology, fungi in the aqueous environment. Our program chair is working one month at a time to identify speakers who are capable and agree to an on-line presentation in the future. This process continues. We are also discussing options for either virtual forays or social distance forays and have been trying to figure out some form of culinary demonstration sometime in 2020. ◆

NEW YORK MYCOLOGICAL SOCIETY

Ethan Crenson

The New York Mycological Society suspended all in-person events in mid-March. But our Society has moved many of our spring programs to the online meeting platform Zoom. We have hosted three lectures; a lecture by member Sigrid Jakob was entitled "Fascinating World of Psychoactive Fungi" (first presented to the Boston Mycological Club in April), Bill Bakaitis presented a lecture called "Morels: An Illustrated Lecture with

Particular Reference to Habitat and Apple Orchards" and Lawrence Millman brought us "The PsychroWard: Fungi in the Cold" including some opening remarks regarding "Looking for fungi in the context of COVID-19." More lectures are planned including "The Other Bracketology" by Paul Sadowski.

Our membership has also been taking advantage of the public thirst for lock-down enrichment by bringing presentations to organizations outside of our club. Tom Bigelow will be presenting "An Introduction to Polypores" for the Connecticut Valley Mycological Association. For a local not-for-profit gallery, member Ethan Crenson presented a program on Morels which included taxonomic information as well as a "cooking show" in his own kitchen. And Crenson and Jakob will soon present a basic mushroom class called "Zooming In On Mushrooms" for Brooklyn's Green-Wood Cemetery. All the while, the NYMS continues to host our weekly mushroom ID sessions, a tradition we've long called "Foul Weather Friends" meetings. But our ID sessions are now held on Zoom and rely heavily on our membership using the web site iNaturalist to post images and data of collections and "screen-sharing" with the group as we discuss them. Holding a mushroom up to one's laptop webcam is insufficient for mushroom identification. ◆

MINNESOTA MYCOLOGICAL SOCIETY

Kathy Yerich

Thanks for reaching out to Minnesota Mycological Society to share what our club has been doing in your NAMA *Mycophile* article! Our club got a bit of a late start, but truthfully, so did our mushroom hunting season.

MMS meets monthly all year, and twice a month in our busiest mushroom months, which are May and September and October. MMS is also a large club, with over 500 members, so we were cautious to host our first meeting. President Tim Clemens, is a student at the University of MN and was able to use his University Zoom account, which allows up to 300 participants.

Our first Zoom meeting was held in May, the subject was Morel Mania.

We covered foray basics, followed by tips for finding Morels and Morel and False Morel identification.

We had 178 attendees for our first meeting and it was so nice to see faces, hear voices and share our excitement for the upcoming mushroom hunting season.

Based on the popularity of the first meeting, we hosted a Zoom Happy Hour on Memorial Day, where people could touch base and share their foraging experiences and finds.

About 60 people joined for a one-hour Memorial Day Mushroom show and tell.

For June, we are hosting two more Zoom meetings, each for our Graduate Student Scholarship Winners to present their research:

June 8th
Nick Rajtar will speak about his ongoing research of the fungal associates of emerald ash borer currently devastating Minnesotan ash forests in his presentation titled, "A Closer Look at Fungi Interacting with the Emerald Ash Borer."

Eduardo Perez-Pazos will speak on the genus Clavulina (coral fungi) in his presentation titled, "Richness and Ecological Traits of Coral Fungi (Clavulina) in Neotropical Forests."

June 22nd
Lang DeLancey will speak upon the Gadgil Effect in his presentation titled, "The Gadgil Effect: How Competition Between Fungi May Enhance Soil Carbon Storage."

Let me know if you have any other questions and thank you for writing this article to show us what is happening with mushroom clubs around the country! ◆

MUSHROOM SOCIETY OF UTAH

Ashley Simon, Boardmember, MSU

In a typical summer, our club (Mushroom Society of Utah) would meet on the first Saturday of the month for a group foray in the nearby mountains. For May, another board member suggested we do something virtually due to the pandemic. About a week ahead of time, we posted on our club's facebook and to our member email list the

following message: **Join us Saturday May 2nd for a Virtual Foray at 4 p.m. on Zoom.**

We wanted to still hold our May foray, even in light of current events. Here's the plan:

Photograph any mushroom specimens you would like to show or have help identifying before Saturday, then join the Zoom meeting (information below).

Photo Tips: Taking well lit photographs will help our identifiers see more details of what you find. Before you start looking, remember to keep in mind…

Habitat. What is this mushroom growing on (wood, soil, live/dead tree)?

Gills. The underside of the mushroom (including the whole stalk) is necessary for identification, so try to get pictures of the top as well as the bottom.

Elevation. Where were you when you found the specimen?

Submit your photos by Friday night by emailing them to foray@utahmushrooms.org.

We will go in order of submissions, and open it up for live sharing after that, time permitting.

Note: It can still be helpful to collect your specimens for further examination at home, especially if you want to try to ID them using reference books/websites.

The Zoom call was facilitated by our president Adam Luker, with Don Johnston and Mark Cannon as primary mushroom identifiers. Photo presenters, in order:

1. Ed D'Alessandro
2. Adam Luker
3. Ken Davis
4. Van Edgette
5. Don Johnston
6. Ashley Simon
7. Alison Neville

PUGET SOUND MYCOLOGICAL SOCIETY

Marion Richards, Vice President

The virtual opportunities have given us the option to have speakers that may not be able to travel in person speak at our club meetings. Even though there are challenges with time zones and coordination, it has been pretty interesting to have east coast speakers that we may not have had otherwise. We have also been able to reach a larger audience with the meetings being online. The engagement is quite different, but I feel like a lot of interest has been garnered in offering meetings this regard. It is also a nice way to see club members that we have not seen in months. ✦

CALL FOR NOMINATIONS

NAMA is seeking nominations for four vacant positions:

1. Second Vice President
2. Treasurer
3. Regional trustee to represent the Gulf States region
4. Regional trustee to represent the Southwest region

Please, respond by July 10th deadline

If interested, or would like to nominate someone you know, please, contact:

Salma St. John, chair
Nominating Committee
Vicepresident1@namyco.org

Be an active part of the North American Mycological Association and help it to grow!

BOOK REVIEWS FOR *THE MYCOPHILE*

One of NAMA's committees that remains little known to probably the bulk of the membership is the Editorial and Literature Committee, the literature function of which is coordinated by Steve Trudell. The committee has several charges in the NAMA Policy Manual but an important one is to provide reviews of books, DVD's, apps, software programs, and the like for publication in *The Mycophile*. If you learn of a new book (or DVD or whatever) that you feel would be of interest to other NAMA members, or if you would like to write a review, please contact Steve (mycecol@uw.edu) so that he can coordinate acquisition of the items and submission of reviews to the newsletter.

The Mushroom Culinary Arts Corner

PORCINI NAAN

By Salma St. John, committee chair and NAMA Vice President

A while ago, I had a chat with Melodie Gates, Mushroom Culinary Arts member and NAMA treasurer, about *The Deerholmes Mushroom Book - from Foraging to Feasting* by Bill Jones. I asked Melodie if she could share one of her favorite recipes in that cookbook. Melodie contributed this Porcini Mushroom Naan recipe.

INGREDIENTS

1 pkg instant dry yeast (2¼ tsp)
1 cup warm water
¼ cup white sugar
3 Tbsp milk
1 egg, beaten
2 tsp salt
2 Tbsp porcini powder
4½ cups flour
1 Tbsp minced garlic
¼ cup melted butter

DIRECTIONS

In a large bowl, dissolve yeast in warm water. Let stand 10 minutes, until frothy. Stir in sugar, milk, egg, salt, porcini powder, and flour to make a smooth dough. Knead for 6 to 8 minutes on a lightly floured surface, or until smooth. Place dough in a well-oiled bowl, cover with a damp cloth and set aside to rise. Let it rise 1 hour, until the dough has doubled in size. Punch down the dough and knead in the garlic. Pinch off small handfuls of dough about the size of a golf ball. Roll into balls, and place on a tray. Cover with a towel, and let it rise until double in size, about 30 minutes. Roll out the dough into 6 to 8 thin circles. Preheat the grill to high heat.

Lightly oil the grill. Place dough rounds on the grill, in patches, and cook for 2 to 3 minutes, or until puffy and lightly brown. Brush uncooked side with butter and turn over. Brush cooked side with butter and cook until underside is brown and the naan puffs up, about 2 to 3 minutes. Remove from the grill and repeat the process until all the naan has been prepared.

****

I tried this Naan recipe, which is excellent and easy to make (see photo above). I also tried it with some variations. For example, I used some whole wheat organic flour (15%), and baked it on my pizza stone in the oven, instead of grilling it. Both variations yielded excellent results: tasty, slightly chewy bread with aromatic flair.

Try to freeze the bread as soon as it cools after cooking, once it is reheated in a toaster oven, it has the out-of-the-oven freshness once again.

Enjoy! Salma St. John and Melodie Gates

CITIZEN SCIENCE IS A SAFE WAY TO WEATHER THE PANDEMIC

by Bill Sheehan

Have the calls for social distancing in response to COVID-19 left you with cabin fever? Got squirrely kids? Here's an activity that is timely, safe and fun. The goal is to see how many species of plants, animals and fungi you and your neighbors can record in your neighborhood.

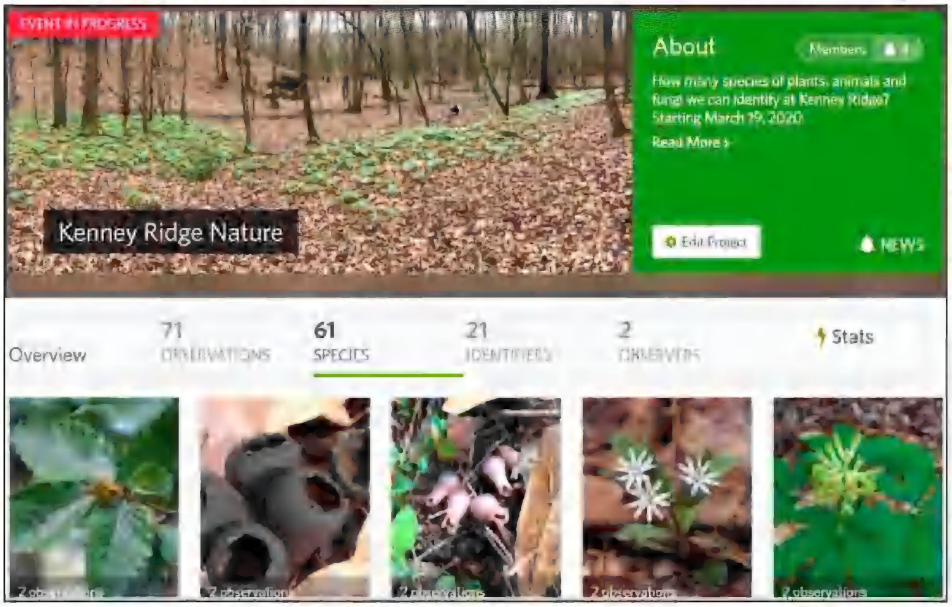
It happens that the COVID-19 struck just as Spring is bursting out in many parts of North America. Outside is a healthy place to be, provided you're alone … or six feet apart from others. There's opportunity here. This activity uses the iNaturalist (iNat) app which employs Artificial Intelligence and crowdsourced experience to identify all manner of living organisms.

You may have used iNat to record fungi for the North American Mycoflora Project. iNat does even better for many plants and animals. Using iNat outdoors is a great way to help friends and family get their minds off the pandemic and tune into something that is bigger than humanity: the diversity of life that humans are one small part of. Putting names on organisms opens us to the realization that every distinct life form has a unique set of attributes and ecological requirements which the name allows us to probe.

To start a neighborhood project, one person needs to create a "collection project," set a start date, and "create a place" that defines the boundaries of your neighborhood. Actually, you might need to find an experienced iNat user first, since in order to create a new place one "must post at least 50 verifiable observations via your account" (iNat doesn't want a clutter of rarely used places). A collection project is essentially a filter that includes all observations posted within the boundaries of time and place. The person in charge of a project, called the Admin, can also remove silly or inappropriate postings.

Once a project is set up, invite your neighbors to participate. Have them create personal accounts and join the neighborhood project. Then participants go outside and take pictures of any plants, animals or fungi that strike their fancy, and upload photos to their iNat account. You can upload outside if you have a good cell signal and have downloaded the iNat app (iOS or android) on your cell phone. I usually take multiple photos of several things in the field, then select, crop and upload them when I get back home, using wifi.

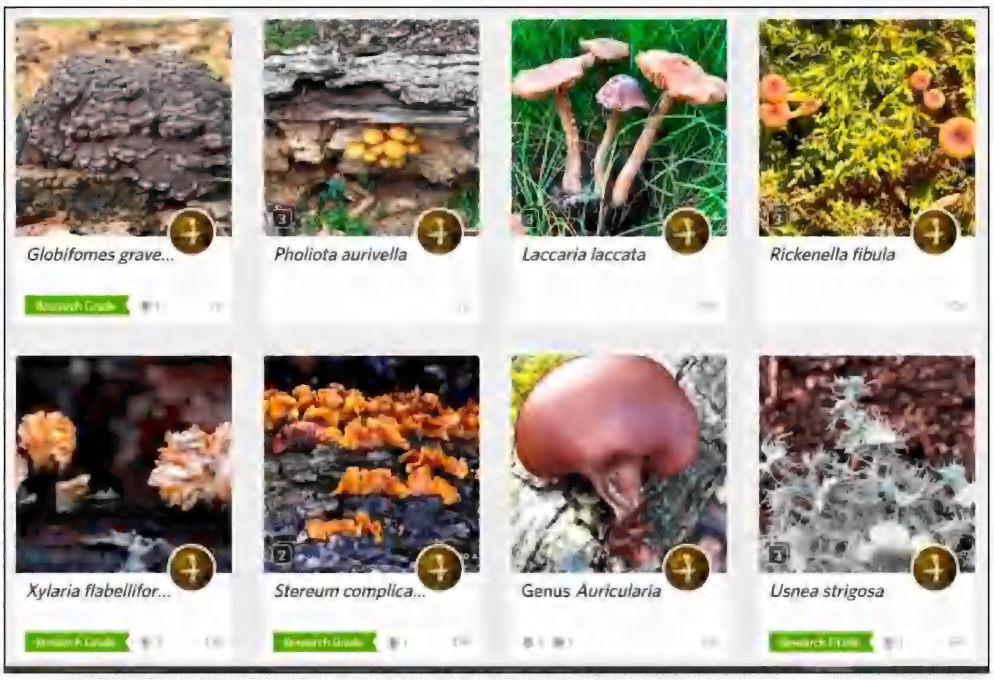
Any photos with location data within the project boundaries that you upload to your account will be automatically added to the project. The easiest and most reliable way to do that is to take photos with a smart phone camera with GPS turned on. However, any camera will work. You can manually place your images on a map as you upload them to your account in the iNat web site. (You can also move an observation's location manually if you don't want your home location becoming public.)



A neighborhood project in Athens, Georgia

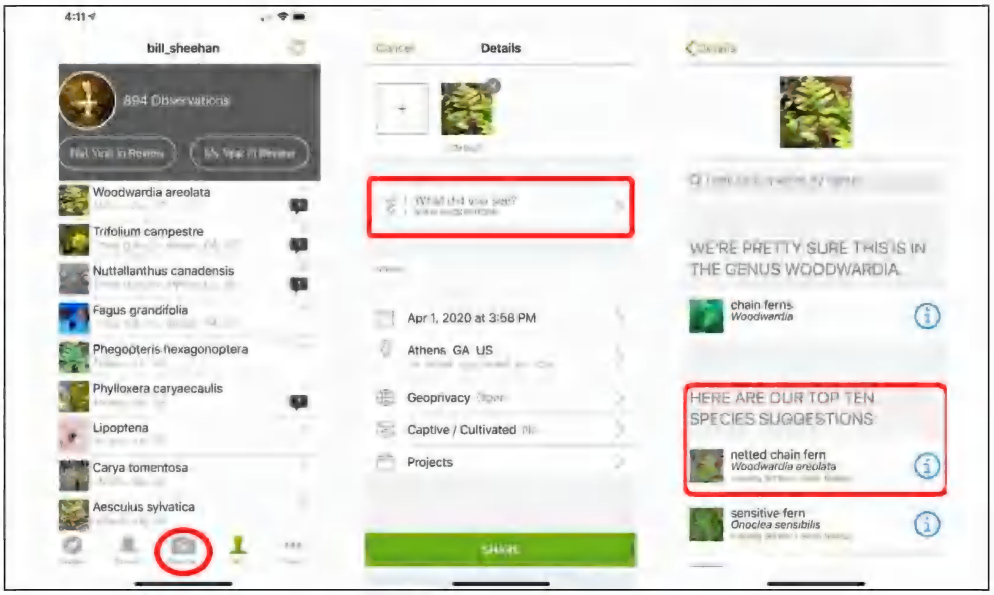
Using iNat on a smartphone (outside or at home) lets you use a really fun feature: iNat's artificial intelligence. To use

the AI, press the icon "Observe," either take a photo or select one from your camera, press "Next," repeat with several more photos if you have them, and press "What did you see?" In response, iNat gives you multiple options and you select the best fit (usually the first). If you're way off base often other naturalists will suggest a better name. Recently I have been having fun challenging iNat by posting photos of distinctive-looking leaves just coming up, without flowers. I keep following the distinctive leaves until the plant flowers, then it is usually easy to get a solid identification – and see how smart iNat was before there were flowers!



Some fungi encountered

iNat is pretty good at putting names on common things if the photos are clear. But there's an art to taking good nature photos with a smart phone. Take several photos for each organism of aspects likely to be important for identification; take at least a general shot and a close-up. You can get special apps ($3) and lenses ($20) to do amazing close-up photography, which is usually helpful for small critters like insects. Most photo apps these days also let you crop and otherwise tweak your photos before posting to iNat.



Using iNat's AI to get species identifications

This activity is best for adults and older kids. iNaturalist has a gamified app for younger kids called Seek. Both apps and instructions are covered in this article: Exploring Nature When You're Stuck at Home.

The good news is that anyone, young or old, can be safe and have fun outdoors doing a virtual social activity with other curious naturalists. What's more, there's scientific value in having many eyes in many places at many times recording natural history. In aggregate, the recorded data add to our knowledge of the distribution and phenology of organisms and, over time, their responses to climate change. Such "crowdsourcing" is part of a growing citizen science movement.

Bill Sheehan is a recovering entomologist living in Athens, Georgia. He is president of the North American Mycoflora Project.

CITIZEN SCIENTISTS TO THE RESCUE
THE PAST, PRESENT AND FUTURE OF THE NORTH AMERICAN MYCOFLORA PROJECT

By Bill Sheehan, Joanne Schwartz and Sigrid Jakob

The North American Mycoflora Project ("NAMP") was launched into the world at the annual meeting of the American Mycological Society at Yale University on July 14, 2012. It was born from an audacious vision: to create a complete 'funga' for North America – a comprehensive list of the continent's fungi, supplemented by maps, images, voucher specimens and sequences for every single species. It would have been a step far beyond the incomplete and often unreliable patchwork of foray lists, monographs and herbarium inventories that currently makes up our understanding of the fungi of North America.

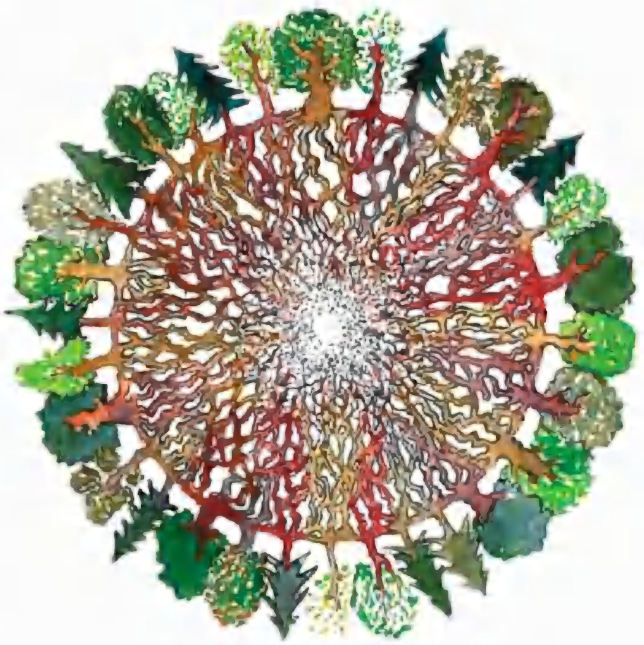
This ambitious enterprise never got out of the starting gate, mainly because it would have required hundreds of mycologists and millions of dollars in funding, dollars that no institution was able to provide.

And so the idea lay dormant, waiting for its moment.

The launch of a movement

By 2017, the world had changed. The "molecular revolution" had transformed mycology; DNA sequencing of fungi shed new light on relationships among genera, revealed their history, and allowed for a more confident identification of specimens beyond the murkiness of morphological characteristics. But even then, this powerful tool was still only available to the very few.

The vision propelling this new incarnation of NAMP as a newly incorporated nonprofit organization was just as bold as its predecessor but also more realistic and inclusive. Instead of relying on a small cadre of overworked and underfunded mycologists to document the continent's fungi, it would harness the efforts of the thousands of mushroom enthusiasts who already spend their weekends surveying America's forests and wetlands, reserves and parks. We believed that, equipped with the right protocols, these citizen scientists could do the collecting and vouchering and we could get their collections sequenced. Together, we could vastly expand the knowledge of our native fungi.



Artist's depiction of a Wood Wide Web of fungi
Credit: Frits Ahlefeldt-Laurvig, Hiking Artist

And so, in 2018, the North American Mycoflora Project was reborn thanks to the perseverance and dedication of a few volunteers, coupled with the support of generous sponsors and donors, including the **North American Mycological Association**. In just two years, over 160 projects have seen the light of day. These projects span a broad geographic range, from Alaska to Puerto Rico, and Hawaii all the way to Greenland. Projects range in scale from local and regional to continent-wide, and include forays and taxon-focused projects (such as *Cortinarius*, *Inocybe*, *Russula*, Boletales, Bankeraceae, polypores, crust fungi and others).

Eight-headed *Amanita ocreata* found by Macro Fungi of the Channel Islands (CA) project. Credit: Joanne Schwartz

While most projects are led by unaffiliated mycophiles, a good percentage are connected to mushroom clubs, civic organizations (such as the Great Plains Nature Center, Potter Valley Tribe), educational institutions (such as Valdosta State University, Glen Urquhart School), government organizations (such as Northwest Territories, Florida Department of Agriculture and Consumer Services) and national parks (such as Boston Harbor Islands, Glacier National Park). There's even a project that aims to find and sequence mushrooms described by Charles McIlvaine around Philadelphia more than a century ago.

Almost 4,300 specimens have been sequenced to date from the various individual projects, with results posted on MycoMap and some also on MyCoPortal and Genbank. Among these are very rare species like *Lachnum halesiae* found on *Halesia carolina*; an undescribed species in the family Hymenogastraceae; an undescribed *Callistosporium*; and undescribed species in *Amanita* such as *Amanita sp-N68* and in *Russula*, including *Russula sp-IN58* and *Russula sp-IN99*.

NAMP data has also helped clarify species: for example, Jean Lodge, University of Georgia and NAMP board member, is working with members of two NAMP projects (South Sound, WA and Long Island, NY) to sort out three species of *Chromosera* formerly thought to be one. These species includes *Mycena lilacifolia* Peck, which will be resurrected in the genus *Chromosera* and taken out of synonymy with *Chromosera cyanophylla*.

Other species that have been taken out of synonymy thanks to NAMP data include *Calvatia lilacina* (which we now know is not same as *C. cyathiformis*); *Bolbitius variicolor* taken out of synonymy with *B. titubans*; and *Amanita pantherinoides*, which has been discovered to be a valid American species and not a synonym of *A. pantherina*.

In addition, two Continental Mycoblitzes – "virtual" forays open to anyone with an iNaturalist account – have resulted in 5,285 observations of 1,165 species, by 220 participants. Almost 600 sequences have been posted so far and more will be processed once the Aime Lab at Purdue University resumes working after the COVID-19 lockdown.

Beyond the numbers, NAMP has made its mark in other ways: it has allowed regular mycophiles and mushroom clubs access to tools previously reserved for scientists. It has inspired them to become better citizen scientists, to learn new skills and come to a deeper understanding of this very special kingdom.

98 dried project specimens from one collecting trip
Credit: Joanne Schwartz

Learning as we go

As was to be expected, the ambitious enterprise of democratizing molecular analysis and engaging hundreds of citizen scientists in the process was not without teething pains: the labs that did our sequencing weren't always able to accommodate our idiosyncratic workflow, our participants didn't always follow protocols on how to submit their specimens, and not all sequences are easy to

interpret by nonscientists, to name but a few of our most prevalent issues. By the end of 2019, we had to ask our participants to hold off on sending any more specimen tubes; we were officially on hiatus. This forced break, while frustrating, proved to be a blessing in disguise. While we were busy having conversations and a round of sequence and data-flow tests with a potential sequencing partner, we also did some soul searching. We were proud of what we had achieved in just two years, but we wondered, was there an opportunity to make an even greater impact?

In talking to enthusiastic amateurs, we often heard that they found us intimidating. And we'll admit that it takes a certain amount of dedication to document a collection, dry the specimen, send it in for sequencing, make sense of the results, and send it to a fungarium. This means our participants are a relatively small but dedicated group, self-selected for their willingness to engage with our protocols. On the other hand, platforms like iNaturalist and Mushroom Observer have demonstrated that there are tens of thousands of people passionate about fungi, people who are willing and able to create records of their finds. We accepted the challenge to make NAMP accessible and inviting to more participants.

Fungi under attack

The other question we asked ourselves was about our impact in the world. Participants love that sequencing has the power to resolve thorny ID questions and help put a name to a mysterious find. But to see NAMP purely as a tool for identification is vastly to underestimate its potential.

Today, fungi are under threat like never before. Habitat destruction, pollution and climate change mean that fungi are going extinct or changing distribution faster than humans can document. Underfunded mycology departments and a loss of "alphataxonomists" mean there are fewer individuals with the time and expertise to catalog and map. And, because institutions and the general public don't understand the critical contribution of fungi to ecosystems, these manifold threats will not change anytime soon.

However, these threats do create an opportunity and an urgent need to put NAMP into the service of conservation as a tool to help document and even protect rare and endangered species, or a way of tracking species that are harbingers of climate change. These data could support plans and policies for land management and habitat restoration, as well as Red List species submissions. We might help connect clubs and individuals with organizations needing fungal surveys for threatened habitats. We could partner with scientists doing research on rare or threatened species or the impact of climate change on the natural world, and supply an army of foot soldiers to collect and document them.

Fungi are a hyper-diverse kingdom.
Credit: Wikimedia Commons

A new organization for a new world

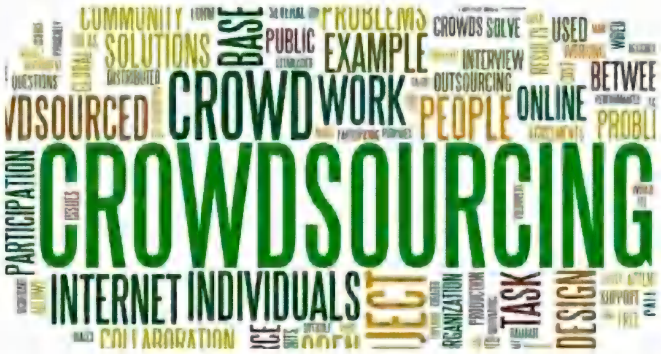
It is clear that there is an opportunity for NAMP to engage more people and make a greater impact in the world. But tweaks to our current organization wouldn't be enough to make this happen. That's why we took this hiatus, as an opportunity fundamentally to rethink who we are and how we operate – a complete reboot, if you will.

The new NAMP will relaunch in early August 2020.

Our mission will be expansive and inclusive: to equip citizen and professional scientists with the tools to document the diversity and distribution of fungi across North America.

For a start, we're ditching our name. Having the botanical term "flora" in our name is directly at odds with our desire to be champions of our very own kingdom, Fungi, so it had to go. We'll reveal our new name on our relaunch day, but suffice to say it reflects our mission.

We have a new sequencing partner in the Barcode of Life Data System ("BOLD"), based at the Center for Biodiversity Genomics at the University of Guelph, Ontario, Canada. BOLD is able to analyze high volumes at low cost with a predictable turnaround time. This partnership will clear the DNA-sequencing bottlenecks and offer other advantages, such as easy GenBank submission.



Credit: International Institute of Information Technology, Hyderabad

We will also be making it easier to participate in NAMP. We believe that every enthusiastic member can contribute good data, even if they are not yet ready to voucher and sequence. If thousands of citizen scientists learned to take and post quality geo-tagged field photos, not only would we be building an important body of ecological and taxonomic data, we would also be creating a pool of individuals who will want to learn more about science and move up to the next level. Our goal is to engage many more people, especially young people, in what we're calling Level 1 activities, and then provide resources and encouragement to those who want to do the more complex activities of sequencing and vouchering (Levels 2 and 3 respectively).

Come participate!

So if you're already participating in a NAMP project, welcome back! You'll be hearing from us soon about all that is new, as well as what to do with your samples.

And if you're merely curious, and would like to find out more, sign up for our Funga Decoded eNewsletter (https://mycoflora.org/email-list) and Deep Funga Blog (https://mycoflora.org/index.php/resources/blog), and follow us on Facebook at https://www.facebook.com/mycoflora and Instagram at https://www.instagram.com/na_mycoflora/. We have all kinds of exciting announcements to make. We'll be opening a new round of sequencing grants to help more projects sequence even more specimens.

Participating has never been easier – or more important. We look forward to a world in which citizen scientists of every experience level come together to collect valuable data to increase awareness of the critical role of fungi in the health of our ecosystems, allowing us better to protect them in a world of rapid climate change and habitat loss.

About the authors

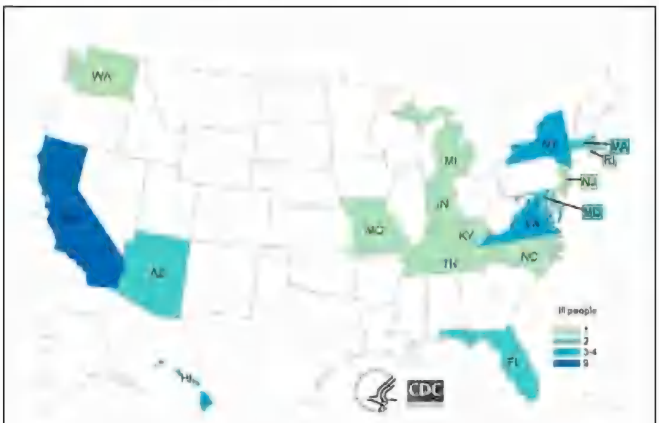
Bill Sheehan *is the President of the North American Mycoflora Project. He's a recovering entomologist who discovered fungi seven years ago after starting and running national environmental policy nonprofit organizations. He's leader of the Northeast Georgia Funga NAMP project.*

Joanne Schwartz *is Vice President of the North American Mycoflora Project. As a naturalist who has studied fungi for over 50 years, she leads the Macro Fungi of the Channel Islands (CA) NAMP project.*

Sigrid Jakob *is an amateur mycologist, citizen scientist and NAMP project leader for Fungi of NYC, with a particular interest in coprophilous fungi.*

FLAMMULINA LISTERIA OUTBREAK

On June 10, Michael Beug, alerted by Paul Kruger, wrote to NAMA's toxicology consultants, asking us to alert fellow members of Mushroom groups of a recent Listeria outbreak across the nation caused by contaminated commercially grown Enoki mushrooms. https://foodpoisoningbulletin.com/2020/enoki-mushroom-listeria-outbreak-ends-with-36-sick-4-dead/ This alert drew quick response from Debbie Veiss, Rick Van de Poll Dennis Desjardin, Denis Benjamin, Tim Baroni, and others who all agreed that mushrooms, including those obtained from commercial sources must be well cooked to assure safe consumption. I was asked to comment and am including here my response sent originally to the Mid-Hudson Mycological Association on June 11.



Enoki Mushroom Listeria Outbreak Ends With 36 Sick, 4 Dead

The enoki mushroom Listeria outbreak has ended with 36 sick in 17 states and 4 dead, according to an update published by the Centers for Disease Control and Prevention (CDC). Thirty-one people ...

foodpoisoningbulletin.com

Enoki or Enokitake is the Japanese name for *Flammulina velutipes*. ("Velvet Foot" #63 in Lincoff's Audubon Guide, description on p. 759; aka Velvet Footed Collybia, Velvet Shank, Futu, Golden Needle, or Winter Mushroom, elsewhere.) When cultivated without light and with CO2 enrichment, *Flammulina* becomes bleached and elongated in appearance. Since cultivated *Flammulina* are widely-sold in grocery stores, you should ensure that they are fully cooked before eating them.

Flammulina is widely considered a choice edible, but as we know from poison control records and NAMA's registry of cases, it is not at all uncommon for 'edible' mushrooms to be associated with toxic effects. In this case, the Listeria outbreak was apparently caused by early contamination of the commercial product in Korea, and probably enhanced by containment in packaging during shipment and storage.

In our area, *Flammulina* is often associated with the death of Elm trees initiated by the Dutch Elm Disease (*Ophiostoma ulmi*). *Flammulina* follows Dutch Elm Disease in the natural progression of fungi which exploit this habitat and favors the sugar-rich layers of the cambium just under the bark.

In the Hudson Valley, I have found *Flammulina* fruiting in every month of the year. As it grows here, it often causes the bark to pop off and fall from the tree. During this stage *Flammulina* might be considered to be 'packaged' in a way not unlike the commercial packaging – compact,

moist, crowded and subject to contamination by other fungi and bacteria. When collecting this 'choice' mushroom for the table, it is prudent to discard any which have signs of rot, decay, or contamination. I know, this sounds like such common sense practice that it shouldn't need mentioning, Yet I am continually amazed at foragers who bring to me a half rotten mushroom and invariably ask the question: "Is it edible?" Well, if it were a zucchini, would you eat it?

In addition to the potential for contamination, *Flammulina* has another problem. It contains the toxic hemolytic protein flammutoxin https://pubmed.ncbi.nlm.nih.gov/3433291/, which is active if eaten raw.

Fortunately, as Paul Kruger states in his letter to Michel Beug, [reproduced below] cooking *Flammulina* solves both problems: it kills Listeria and destroys flammutoxin.

Bill Bakaitis

Paul Kruger's June 10, 2020 email to Michael Beug describes the concern eloquently:

"Enoki mushrooms from Korea have been of concern to both Canadian federal and British Columbia provincial health authorities because packaging, transportation and shelf-life may compromise the food hygiene of these products. Eating of raw or only lightly cooked Enoki or *Flammulina velutipes* mushrooms could result in microbial-caused illness if they are contaminated, also *Flammulina velutipes* has a toxic hemolytic protein dubbed flammutoxin which is not heat stable. Good news, both microbial and hemolytic problems seem to be solved by adequate cooking.

"A couple years ago I became concerned about some Enoki mushroom products displayed in markets, and I made inquiries to appropriate individuals in various relevant agencies about health concerns with market mushrooms. My result was a distinct impression that the potential for problems was on the radar, but the mushrooms were still allowed importation because they met requirements for safe packaging. I've been bothered by the lack of instruction labels on market mushrooms, perhaps they could have a little sticker stating, "Cook before eating."

"I recall from conversations that variable packaging was of special concern, with some shrink-wrapped and air-impermeable packaging causing concern of potential botulism. Problems with both the merchants' and consumers' unfamiliarity with the product may contribute to problems. I've seen with my own eyes some wretched samples of these mushrooms displayed in shops with murky fluid lurking at the bottom, mold at the top and who knows what in between.

I'd guess the best Enoki are freshly picked, locally grown, and cooked well in a delightful dish."

Paul Kruger

HOW DREAMWORKS FAILED FUNGI

by Camryn Sanchez

In *Shrek 2*, Shrek, Donkey, and Puss in Boots embark on a quest to fix Shrek and Fiona's martial problems after her father tries to have Shrek killed. The trio steals a potion entitled "Happily Ever After" with a label saying, "beauty divine." Shrek hopes that the potion will make him into someone Fiona would have been happier to marry, but before he drinks it, he sneezes a bit of the potion onto a nearby mushroom, and Donkey has a sip. We then see Shrek turn into a man, Donkey turn into a horse, and the mushroom turn into a rose.

Ogres are a mythical creatures, but because Shrek: consumes organic material (he eats rats), breathes oxygen (he burps and farts), is able to move (runs), reproduces sexually (he has children), and grows from a hollow sphere of cells, the blastula, during embryonic development (demonstrated by his children in Shrek 3): Shrek falls into the kingdom of Animalia along with Donkey.

Because Shrek turns into a human man and Donkey into a horse, they both transform within the kingdom of Animalia. However the mushroom transcends into Plantae from Fungi which is unexplained. Not only does the fungi not remain within its own kingdom, but it moves into the kingdom that is least genetically similar amongst the three main Eukaryotic kingdoms: Fungi, Plantae, and Animalia. It is entirely nonsensical for the mushroom to become a rose when it is more genetically similar to a bearded dragon, a dodo bird, or even the reader of this article.

These kingdoms branched out from their common ancestral eukaryotic branch at different times. With Fungi and Animalia branching off together under Opisthokonta. Defined in the textbook *Biology 2e* by lobe-like pseudopods or a single flagellum in the rear, making humans and mushrooms much more genetically similar than mushrooms and roses. Plantae belongs to Archaeplastida which only emerged as a branch after the origin of chloroplasts.

The potion's label claims it creates "beauty divine" in the consumer, so the subsequent species transformations are insulting to the beauty of all donkeys, ogres, and mushrooms. The idea that horses, humans, and roses are inherently more beautiful species is unsupported and offensive.

Also, Shrek clearly sneezes the potion onto the cap of the mushroom, but none of it goes onto the ground. Mushrooms absorb their food (nutrients) through mycelium which exists underground. They do not "eat" through their caps, so the potion would not have been absorbed this way, and in snot form no less. Shrek and Donkey on the other hand had to drink their portions of the potions in order to feel its effects, and according the Shrek Wiki, the potion user is referred to as the "drinker."

Finally, we see the mushroom transform into a rose in exactly 117 seconds, but Shrek and Donkey transform for *119* seconds, when in reality a large animal takes much longer than to digest liquid. In a human, drinking water takes around five minutes to appear in the bloodstream, and 75-120 minutes to be completely absorbed, according to a study in *Outside* magazine's *Sweat Science* column.

These inaccuracies teach *Shrek 2* fans incorrect information about biology, leaving them unprepared for the scientific world and the very nature of fungi that our planet relies on for survival. It is this sort of misinformation in the media that makes fungi the most unappreciated eukaryotic branch in the world to this day.

Camryn Sanchez is a freelance writer based in El Cerrito, California who works in print and radio reporting. Her work has appeared in the East Bay Express, the Phoenix, Oakland Magazine, and the East Bay Monthly. Camryn is a student at Sarah Lawrence College, and lives with her two guinea pigs Pierogi and Froot Loop. She believes that fungi might just save the world.

2020 Annual Photo Contest Rules

Eligibility. The Photo contest is open to all mushroomers. NAMA membership is not required to enter. Images that have previously won (including honorable mention) are not eligible. Up to 15 images may be entered per person, with a maximum of 6 in the Pictorial, 6 in the Documentary and 3 in the Judges Option to make a total of up to 15 images. Closing date: All entries must be received by the Contest Director on or before **September 1, 2020**.

Subject Material. For Pictorial and Documentary, organisms from the Myxomycota (slime molds) and the classes Basidiomycetes and Ascomycetes of the Eumycota ("true fungi") are eligible. For Judge's Option, nearly anything goes, so long as the theme relates to fungi, and fungi are a key element of the photograph.

Entry Divisions, Limited or Advanced. If you won first, 2nd or 3rd place 2 or more times before, then you must enter in the Advanced division. If you won fewer than twice before, then you can enter the Limited Division.

Categories

Pictorial. This division is for single photos that illustrate the beauty and variety of fungi in form and color. Mushrooms should not be cut or turned over and look natural. Judging criteria include consideration of both technical (focus, depth of field, exposure, lighting, color, absence of distracting elements) and artistic (composition, color, background, lighting) aspects.

Documentary. For single photographs especially suited as illustrations in a field guide of monograph, or for use in a lecture. Emphasis is placed on portrayal of key morphological characteristics such that the usefulness of the image as an identification aid is maximized. Subjects may be shot in the field, laboratory or studio and the photographer has complete freedom to cut, process, manipulate, or orient the specimen in any desired manner to achieve the goal. Close-ups of single features and photomicrographs are acceptable. Judging criteria will be the same as in the Pictorial category but they will be of secondary importance to the overall mycological utility of the photo. Accurate identification of the subject will be a consideration.

Judge's Option. For single photos or series which do not fit into the Pictorial and Documentary divisions. Examples include time-lapse series, ecological relationships of fungi (e.g. fairy rings), fungi with animals, people enjoying fungi, humor, etc.

Awards. First, 2nd and 3rd place will be awarded in Pictorial, Documentary and Judges Option. Honorable Mentions will also be noted for some Pictorial and Documentary photos. This year award certificates will be emailed or given to first through 3rd place winners.

Marking, Listing and Submitting Digitals. Let us know if you are entering the limited or advanced division. The digital photos file name can include 3 things, D (for Documentary) JO (for Judges Option) or P (for Pictorial), and you the photographer initials, followed by the Genus and species of the fungi or the title for the Judges Option photo. Digital images may be emailed or mailed on a CD or DVD and will not be returned. Mail images to John Plischke III, 411 Center Avenue, Greensburg, PA 15601, 724-832-0271, Fungi01@aol.com. If emailing in images please include your name, address and phone number. Images can also be submitted using free file mailing programs such as http://www.mailbigfile.com/ or Dropbox, etc.

Reproduction. Entry in the contest constitutes the consent of the photographer to allow NAMA to reproduce copies of each winning image (including Honorable mention etc.) for circulation or use by NAMA Committees, among the membership, NAMA brochures, signs, advertising and affiliated societies. NAMA also reserves the right to post images of the winning images on the NAMA web pages and in *The Mycophile* and to be used by the marketing committee. All copyrights remain with the photographer.

Photo of You. If possible please include a photo of yourself, so we can use it to introduce the photographers. This is not a requirement and the photo of yourself is not counted as an entry. It has also been requested that we start to collect data on where the mushroom photo was taken. We don't need gps coordinates, but it would be helpful to have a city/county/park/state name – something basic to post on the site for future reference.

North American Mycological Association
Bruch Reed, Executive Secretary
1930 W. School St. #2
Chicago, IL 60657

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ANNOUNCEMENTS

NAMA will be offering a monthly program showcasing and sharing the knowledge and skills of members. We will make these presentations available to all NAMA members.

We are seeking proposals from you, NAMA member, for a Zoom-presentation on any mushroom-related topic.

Presentations should be about 45 minutes long so that there is time for some Q&A. If you're not familiar with making Zoom presentations, we can provide some guidance.

We will pay an honorarium for all presentations; proposals will be chosen by a small committee appointed by NAMA officers.

Submit your proposals by July 30 to Melodie Gates: treasurer@namyco.org

OFFICIAL NOTICE OF ANNUAL MEETING SCHEDULE

Due to COVID-19, NAMA's annual meeting, which traditionally takes place at the annual foray, will be held in 2 segments in Zoom meetings.

July 13, 2020: 7:30–8:30 pm central daylight time. Annual reports from NAMA officers will be presented, the location of the 2021 annual foray will be considered, and the end of fiscal year budget report will be presented. Preliminary fiscal year 2021 budget will be considered.

October 5, 2020: 7:30–8:30 pm central daylight time.

Committee chairs and regional trustees will present their annual reports, officer and regional trustee elections will be held, fiscal year budget planning will conclude.

According to NAMA's policy manual, "each Affiliated Club is entitled to appoint a member of its club, who is a NAMA member, to participate in the annual Trustees Meeting as a full voting member." Committee chairs, regional trustees, institutional trustees, and elected officers attend this meeting.

I invite any other members who would like to attend to contact executive secretary Bruch Reed for the details: executivesecretary@namyco.org

THE MYCOPHILE

Newsletter of the North American Mycological Association

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Introducing Fungal Diversity Survey Pg. 10
Fungipedia: A Brief Compendium of Mushroom Lore Pg. 13

September-October 2020 www.namyco.org

PRESIDENT'S MESSAGE

Barbara Ching, NAMA President

Hello NAMA members,

I am so happy to share some good news amidst the difficult events of 2020. At the same time, I am in Iowa, which was devasted by a derecho last week; that's why this letter is short—but sweet, I hope. House and tree damage along with electrical and internet outages have put many of us behind in our obligations. Half of Iowa's corn crop was destroyed, and 89-90% of the residential buildings in Cedar Rapids, Iowa's second-largest city, were damaged or destroyed.

Looking forward, we have a date and location for the 2021 foray: Snow Mountain Ranch near Estes Park, Colorado. I hope to see many of you there, August 8-11, 2021. The Colorado Mycological Society and the Pikes Peak Mycological Society will be co-hosting with NAMA. (NAMA has a good history with this location: the 2010 annual foray was held here.) The Telluride Mushroom Festival takes place the following week so you could plan quite a mushroom trip to take away the sting of this year's social distancing. You can find more information about Snow Mountain here: https://snowmountainranch.org/?trace_from=epc.

– Barbara Ching
President

A PLEA TO NAMA MEMBERS

My name is Aaron Haase and I am reaching out to your organization in the hopes that you, or a member of your organization, can help me with something near and dear to my heart. My father, Larry Haase, was once a proud member of your organization many years ago (I believe sometime around the 1970s) and would always tell me tales of his time mushroom hunting and the fascinating wonders that fungi hold! All through my youth my father would show off his NAMA patch and once I was old enough he passed on his NAMA patch to me.

As you can see in the photos I have attached, I had sewn the NAMA patch and others he had given me, as well as quite a few that I had collected myself onto a backpack! See I took these pictures when I was finished sewing the patches that I had acquired onto a pack to show off how well I had done. That was a few years ago and I am sullen to say that earlier this year someone has stolen my backpack and I have yet to see it again.

I know that this might be a shot in the dark but I am reaching out to see if your organization still offers this patch for sale, or if one of your members still has an old patch lying around that I would of course also be willing to purchase! This is my only hope for remembering my father's enthusiasm about fungi and hope that his legacy continues with me.

Thank you so much for the time and consideration,
Aaron Haase

COVER PHOTO: ***Boletus sensibilis*** **and** ***Cyanoboletus pulverulentus*** **by Robert Gergulics**

A DISCUSSION: DIVERSIFICATION OF MUSHROOM CLUB MEMBERSHIP

In our last *Mycophile* issue, Editor Karen Monger's roundup of how clubs are handling the COVID crisis was so well received that we decided to follow it up in this issue with a feature on how our community is responding to another major topic of national discussion right now: the widespread protests led by activists supporting Black Lives Matter. By acknowledging this major social movement, we enter consciously into the larger discussion that is vital to advancing justice for all – as well as expanding and diversifying our organization's membership.

My home club, the Illinois Mycological Association (IMA), has a dynamic and committed member (she prefers not to be named) who was contacted by an urban youth farm group to lead a series of educational mushroom forays for underserved youth. She feels so strongly about the positive impact such a program could make, both on the youth and hopefully on the recruitment of people from diverse backgrounds into our local mycological scene, that she had overcome her reticence about public speaking to pursue the initiative – which was, tragically, postponed due to the pandemic. She writes, "Like so many, I am unsure how to move our club toward more closely reflecting the diverse makeup of our community, to make everyone feel welcome." Here's hoping that next summer we can get more of our underserved youth out into the forest preserves that are such a beautiful part of their birthright as Chicagoans.

– Bruch Reed

Joe Brandt, NAMA's Northeast Regional Trustee, shared the following frank observations of his venerable club:

"The Connecticut-Westchester Mycological Association (COMA) is so white it could get lost in a snowstorm; that's just how it is. We exclude nobody, although I'm pretty sure that someone showing up for one of our walks in a car plastered with [regalia supporting a controversial Presidential candidate] would get a somewhat chilly reception. Our "advertising" (for a long time now) has been very limited to nonexistent, but (with the exception of this season) our walks and most activities have been posted on our website as being free, and open to the general public, so we always somehow manage to attract new members. Next year (if all goes well with this damn virus) we will be making a concerted effort to attract new members through various media advertising and publicity. I would love to see more diversity, but how exactly this could be accomplished is an interesting question.

"As far as social justice issues go, I think that perhaps one of the factors that makes our little group so appealing is that this is an area that we tend to avoid like the plague, no (COVID) pun intended. We are rather staunchly apolitical, at least on the surface; people want to get away from all the BS, and our activities give them a much-needed respite, especially with everything that's been going on this year."

Regards,
Joe Brandt

Spirited, heartfelt discussion on Pikes Peak Mycological Society's Facebook page was significantly responsible for inspiring this roundup and the club's newsletter's co-editors, Mercedes Whitman and Jessica Langley, sent the following response:

"Pikes Peak Mycological Society (PPMS) is an all-volunteer run club whose membership spans Colorado Springs and Southern Colorado, with some members coming from the Denver area. With roughly 60 members (depending on the rain in any given year), we host free lectures monthly during our season that are open to the public, and we try to lead as many forays as possible. As co-editors of the newsletter, we have tried to use this platform to speak about current issues in mycology as well as amplify under-represented voices. Ben Kinsley, who took over as President this year, has made it his mission to bring in more female and BIPOC voices as speakers. The club is committed to scientific achievement and principles, but we also understand that the scientific field is quite limited in its representation of BIPOC. We are hopeful that through outreach and increased representation we might encourage young scientists of color to enter the field of mycology.

"It is important to expand the scope of mycology to be more accessible and applicable to all people. Science itself is rooted in western thought and practice that is systemically reductionist and exclusive. Mycology, therefore, must be re-evaluated and decolonized on an epistemological level. It must extend beyond academia and scientism, the system that defines science and places it at the top of a hierarchy of knowledge and values. There *are* mycologists who have been supported by mycological organizations and events that neither

have formal training nor operate within the rigid sphere of western science – but they are uncommon. The more recent emphasis on citizen science in mycology, and how anyone can contribute important scientific observations through the use of an app – such as with the Fungal Diversity Survey (FunDiS) and data collection using iNaturalist – is an exciting direction.

"Within our club, we have made some small, but hopefully meaningful changes in language we use. As a means of increasing gender inclusivity, we have begun asking speakers for their preferred pronouns. We've also used the opportunity of Zoom meetings in COVID times to host BIPOC and womxn speakers from the International mycological community – and to compensate them appropriately. To increase accessibility to the more costly aspect of inoculation and at-home cultivation experiments, we've also just built a laminar flow hood that our members can rent out in order to cultivate in a sterile environment. In the future, we'll have gatherings where people can experiment using the hood, with guided tutelage. One PPMS member will also be making a video for our YouTube page demonstrating cultivation uses. We do know that we have so far to go, however. Some challenges we face are in outreach, and how to increase our visibility among underrepresented communities.

"Only by addressing mycology systemically and making needed changes can the discipline become more inclusive and diverse. We must also be cautious of tokenizing BIPOC in our efforts; this act may come from a place of good intentions but actually be detrimental to those one wishes to include. It's crucial that this predominantly white and cisgender field acknowledge its positionality and evaluate its biases, and that we commit to being actively anti-racist and willing to learn from those who don't fit the historically typical mold of mycologist. We give thanks to and are learning from BIPOC individuals and organizations in mycology who are doing amazing things, such as William Padilla-Brown, POC Fungi Community and The Mycelium Underground."

– Mercedes Whitman and Jessica Langley

William Padilla-Brown

Renowned mushroom-book author Arleen Bessette offered the following musings on the topic of how to increase diversity in membership; she is not speaking from a club viewpoint per se, but she and co-author/husband Alan Bessette are heavily in demand by many clubs as speakers and foray leaders.

"I had to laugh about your question about POC possibly being uncomfortable or feeling unsafe collecting in the forests/woods. Heck, being a female, I feel uncomfortable and unsafe collecting in some spots! Gender and skin color aside, due to the existence of portable meth labs in the Ocala National Forest and other places, both of us are uncomfortable collecting in certain areas. We have interrupted a drug deal on at least one occasion. Carrying some form of protection (not just for wild beasties) is a wise choice in remote areas in the Southeast. (Finding used needles at trailheads is never a comfortable experience.)

"Your specific question, "what initiatives are clubs/members taking to welcome, involve and cultivate nonwhite members," has me flummoxed. Just a few days ago, a similar question was posed in a psychology group I am involved in, pertaining to trainers/instructors. Alan had similar questions posed to him when he was still teaching, decades ago. I think I have a bit of a negative response to there being special efforts/energies put forth to "cultivate" the participation of any specific group, including middle aged white males! I have to ask, why? If people are interested, they will come. I have never experienced any discriminatory behaviors in groups, in person or online, to POC or other minorities. I have witnessed more hostility directed at people who differ in opinions/beliefs, but that is another story/topic...."

Much love,
Arleen

In 2018, Pat Mitchell helped found the Blue Ridge Mycological Society (BRMS), centered around Lynchburg, Virginia, a diverse area with a complicated history in terms of social justice, with recent protests centering around a monument to a confederate general. I spoke with him and BRMS member David McRae.

"I have some Black club members and they are some of the most committed, excited and engaged people in my club," says Mitchell. He set up a conversation with BRMS member David McRae, who became interested in mushrooms while scouting for deer trails (Mitchell and McRae are part of an urban archery hunting initiative and, as expert marksmen, are in high demand by urban and suburban property owners desperate to reduce an exploding deer population). "I noticed that, through his efforts to see mushrooms, Pat was able to see patterns in the woods, patterns that boosted his ability to find deer trails. That inspired me to want to learn mushrooms, too," says McRae. As he became more interested and involved in mycology, he has come to see how important it is for people of different backgrounds to be part of "the story of mushrooms. Because a lot of that story, as well so many stories in our American culture, have been told exclusively by white male voices. I'd like to learn what people of color and specifically women of color can contribute to the mycological conversation across multiple fronts, especially the medicinal realm."

McRae acknowledges that there is a long-held, fearful bias that is widespread among his family and community: "There are cultural handcuffs on the Black community when it comes to spending time in nature. When the National Park Service was founded, Black Americans were not welcome or safe to visit wild lands; there's this urban-legend-y undercurrent notion that bad guys who don't like us are waiting in the woods." These insidious "cultural handcuffs" also function to deny Black people information and access to medicinal mushrooms now being widely investigated and used to treat mental health issues. "Black culture has an instinctive prejudice against therapists and any medical approach to mental health," relates McRae, who would like to be involved in changing that perception.

Both McRae and Mitchell believe that making their club events safe and welcoming for children of all backgrounds is essential to the future, both of their club and mycology as a whole. They are working on a homeschool unit curriculum that will cover basic mycology; with the pandemic appearing unlikely to relent any time soon, homeschooling is becoming a necessity for many more parents than had heretofore considered the option. "I wish there were already accessible options out there to involve kids in mycology but I haven't found many, so I guess I'll just have to create them," declares Mitchell, father of two preteens. "I'd definitely be interested in that," adds McRae, who has three children under the age of 6.

In BRMS' second year, Mitchell created a tradition to honor Black History Month by celebrating a Black mycological personage of history (this year, it was George Washington Carver) as well as a current contributor to the field (William Padilla-Brown, a *Cordyceps* specialist who, coincidentally, was booked to give a mushroom cultivation workshop at NAMA's COVID-canceled 2020 foray in Missouri).

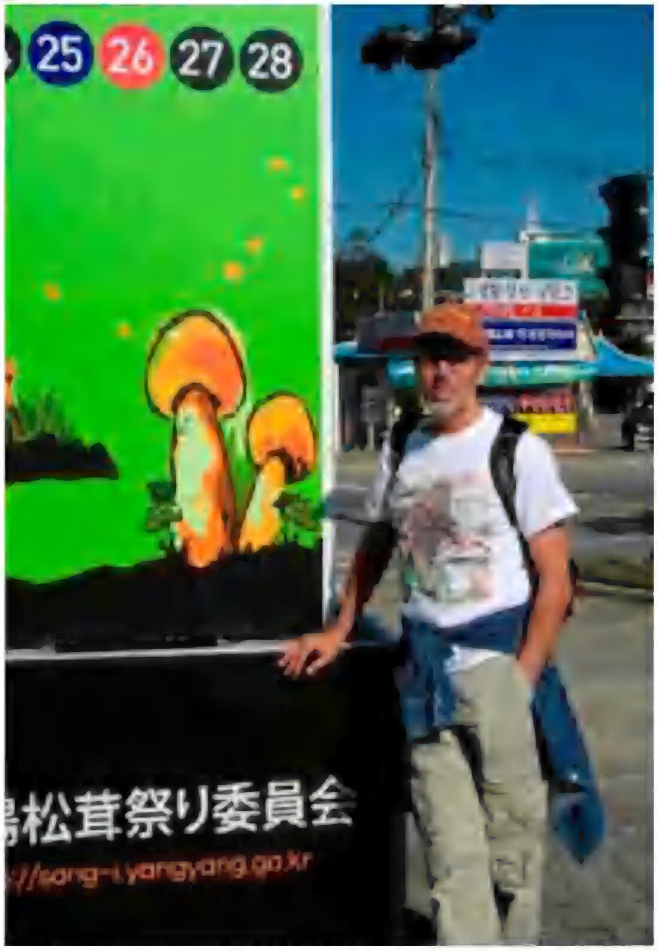
Kemper McRae, Levi Mitchell protesting Confederate statue

Jon Colon, a longtime friend of Mitchell's who is multiracial, recently visited from Chicago to attend a BRMS meeting and observed that he felt very welcome in the group because he had been invited by a close friend; whereas, he might have felt intimidated had he simply popped by the meeting on his own. Looking at the distance members often have to drive to attend events, Colon observed that such distance could be a critical factor in attracting and cultivating diverse members.

Both Colon and McRae brought up the idea of specific-community outreach: "bring the mushrooms to the people," offered McRae, "and the people who are interested will follow the mushrooms back to the club."

– Pat Mitchell, David McRae and Jon Colon with Bruch Reed

2020 KNIGHTON AWARD RECIPIENT
Sam Landes



Sam Landes, nominated by the Georgia Mushroom Club

The Award consists of an individual plaque; publicity for the recipient and his or her local organization in NAMA's newsletter; a one-year NAMA membership; and registration, housing and foray fees for one annual foray within the next three following years. When present to do so, the recipient of the award shall present the award to the next year's recipient.

Through his warmth, caring, friendliness, diligence, welcoming inclusive nature and genuine interest in others, Sam has helped create an atmosphere that welcomes new members and encourages existing members to participate actively and share their interests across the mushroom hobby spectrum. As a result, we have greater diversity of all kinds in our membership. Membership and meeting attendance have both more than tripled in size from 2010 to the present, with new members as far away as California and as young as eight years old. The Georgia Mushroom Club expanded with a growing satellite chapter in Athens, GA, as well as supporting events with our members who live in Auburn, Alabama. MCG also started leading day trips to and promoting activities of sister clubs.

Because he welcomes members personally, remembers names and faces, introduces members to one another if they have any commonalities, members feel appreciated and included and step up in many ways. A number of well-seasoned veteran mushroom club speakers have remarked on how seamlessly our club pulls together to get things done. And also how genuinely nice, interested and curious our members are.

Club Logistics:
Several times a year, Sam organizes and coordinates our Club Board meetings. They have been efficient, fun, productive and camaraderie-filled.

Each month for our club meetings, Sam coordinates and organizes the 'nuts and bolts' and physical logistics of our club meetings. Packing and then hauling AV equipment, books & magazines, display posters, snack equipment, water pitchers, fiber samples, and more from home to the meeting site. After arriving early to unpack, rearrange the room, set up the giant screen, projector and public address system, he starts greeting early arrivals. He also coordinates picking up and transporting speakers from city to city, facilitating our sharing of speakers with our sister clubs. This arrangement makes it much more affordable to invite speakers from far- flung parts of the country.

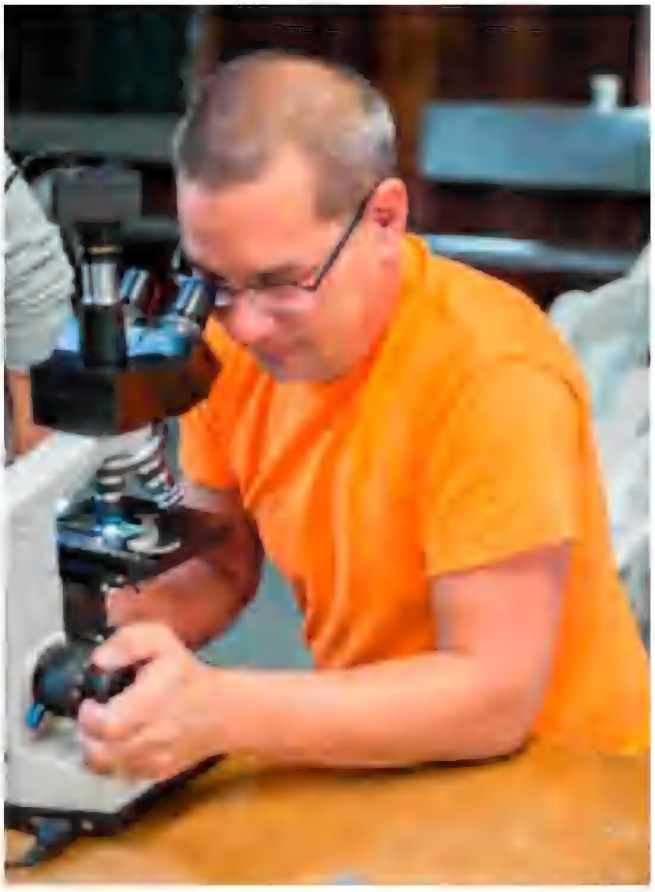
Education:
Through the years, Sam has helped increase the profile of our club and spread the knowledge of fungi throughout the greater Atlanta Metro area by presenting, often multiple times in a month, to garden clubs, master naturalists classes, nature preserves, libraries, homeschooling groups and more. Also through organizing and leading workshops in oyster bag and shiitake log cultivation. He has become well known for his entertaining, fun, informative presentation style.

Our club would not be where it is without his efforts, heart, organizational skills, logistical planning and diligence. The pleasure he's had with our local efforts has informed the work he's done on a national scale. A number of you may already know Sam because in addition to all his contributions to our local club, he has been serving as the NAMA Foray Committee Chair providing both for regional and national foray locations, connecting, organizing, handling logistics, planning, registration, etc.

GARY LINCOFF AWARD WINNER
Michael Kuo

Michael Kuo is well deserving of this award. His popular website mushroomexpert.com is a resource used by many amateur and professional mycologists. That alone is a significant contribution to amateur mycology. He has authored several mushroom books. Michael has presented many mushroom programs across the country in addition to serving as primary identifier at forays.

From the nomination letter: "The site is, quite simply, amazing. The website features a wealth of information for amateurs as well as professional mycologists including: *Collecting for Study*, *Making Spore Prints*, *Descriptions & Journals*, *Identifying Odor and Taste*, *Pronouncing Latin Names*, *Testing Chemical Reactions*, *Preserving Specimens* (Including a link to Michael's personal herbarium), *Using a Microscope*, and *Mushroom Taxonomy*. There are also links to *What's New* (which catalogs continuous updates to the website) as well as *What's This Thing in My Yard?* and links to Michael's current scientific projects which include *The Stinkhorn Project* and *Studies in Leccinoid Fungi*. Finally, there are links to *Identifying Trees* as well as the *Identification Keys* which lead the user to descriptions and illustrations of more than 1000 species of fungi, all of which are supported by scientific research and complete literature citations. It is no surprise to me that more than 5000 unique visits are made to the website every day. Clearly, Michael's website has not only made outstanding contributions to the field of mycology but transmitted significant scientific and aesthetic knowledge about fungi to a diverse public audience."



Michael Kuo at the 2015 Gary Lincoff Foray, run by the Western Pennsylvania Mushroom Club, photo by Robert Gergulics

BOOK REVIEWS FOR *THE MYCOPHILE*

One of NAMA's committees that remains little known to probably the bulk of the membership is the Editorial and Literature Committee, the literature function of which is coordinated by Steve Trudell. The committee has several charges in the NAMA Policy Manual but an important one is to provide reviews of books, DVD's, apps, software programs, and the like for publication in *The Mycophile*. If you learn of a new book (or DVD or whatever) that you feel would be of interest to other NAMA members, or if you would like to write a review, please contact Steve (mycecol@uw.edu) so that he can coordinate acquisition of the items and submission of reviews to the newsletter.

BOOK REVIEW

The Mushroom Hunter's Kitchen:

Reimagining Comfort Food with a Chef Forager

By Barbara Ching

Love the Ones You're With: Chad Hyatt's *The Mushroom Hunter's Kitchen: Reimagining Comfort Food with a Chef Forager*.

Chestnut Fed Books
ISBN-10: 1732757100
ISBN-13: 978-1732757103
https://www.themushroomhunterskitchen.com $28.00

I'll start with the meat of the matter: Chad Hyatt is a California-based chef and mushroom forager; these two facts explain the things I love about his book as well as my reservations about it.

If you like to read cookbooks, you already know what to expect from chef-authors. Hyatt, though, balances chefly refinements and ambition with an adventurous and practical insistence on expanding the range of mushrooms we collect and cook. His encouraging words about *Lactarius*, *Russula*, and *Hygrophorus*: "Not only will learning to enjoy these lesser appreciated edibles help you vastly improve your odds of a successful hunt, but some of them work better for certain types of cooking than the standard prime edibles" (25). This approach should have been part of the book's title because it distinguishes The Mushroom Hunter's Kitchen from other mushroom-focused cookbooks.

Hyatt clearly describes how to clean, preserve, taste, and prepare a wide variety of mushrooms. Thanks to his pages on salted mushrooms, and his brilliant ideas about using them much as you use salt cod, I will be salting mushrooms from my fall hauls. Likewise, Hyatt's mushroom sausage ideas work with what you find, and the book is sprinkled with broth making tips for the less than perfect fungi that sink to the bottom of your basket.

While the content is surprising, the book's organization is standard cookbook: twelve chapters ranging from breakfast to dessert. Using mushrooms, Hyatt reimagines biscuits and gravy by replacing the sausage in the southern diner version with "mixed mushrooms." And then there's the pasta! "*Suillus* Agnolotti with Fennel Shallot Broth and Hideous *Gomphidus* Garnish" anyone? Hyatt adds elite cred to this recipe by crediting Thomas Keller's French Laundry Cookbook for the easy technique. The recipe, he claims, "is an extremely elegant way to serve some of the least appreciated mushrooms you will come across" (162). Maybe so, but come fall, I'll be making Hyatt's "Tagliatelle with Bellybutton Hedgehogs and Pine Nuts." The desserts go way beyond candy caps, including a cauliflower mushroom and kugel! There's a helpful index and appendices. Elena Feldbaum's photography, while not stunning, reinforces the excellent information and inspiration that Hyatt's exposition and recipes provide.

The first recipe I made from this book was "No-Cook Mushroom Syrup." Hyatt credits Ken Litchfield, of the Mycological Society of San Francisco for the technique. Hyatt gave permission to reprint this lovely recipe here:

No-Cook Mushroom Syrup
(1 lb mushrooms yields about 1 cup syrup)

Chanterelles, matsutake, and almondy Agaricus are my favorite mushrooms for this application, but experiment with whatever you have on hand. Do not use this technique for any mushrooms that require thorough cooking to be rendered safe (e.g. morels or honey mushrooms).

1. *Chop cleaned fresh (not dried) mushrooms and toss with sugar in a bowl or jar. For every 100 g of fresh mushrooms you want between 10g and 25 g of sugar.*

   Note: 10 g will give a mildly sweet syrup while 25 g will be rather sweet, so let your end application decide.
2. *Cover and leave for a couple hours at room temperature. At this point, give the ingredients a shake or stir, then refrigerate covered, overnight. I like to give it an extra day in the fridge to make sure the flavor really gets into the syrup. Simply squeeze out and discard the mushrooms, and then strain the liquid for use in desired application. Store extra syrup in the fridge for up to a week.*

I used Iowa-foraged chanterelles, and rather than use the gloriously tinted syrup in the gin martini Hyatt describes, I make cocktails from my constantly replenished chanterelle-trimming vodka and Rothman & Winter Orchard Apricot Liqueur.

Inevitably Hyatt highlights mushrooms he finds in California even as he makes his book accessible to all foragers, encouraging the use of the mushrooms you can find in abundance. But as always, I find the formulaic stories about expectation-exceeding forays and displays of abundance both envy and anxiety-provoking. There's a sort of chest-thumping excess in the photographs of overflowing baskets, the californiacopia of candy caps and boletes that I wish I could find. But I also wish I didn't have visions of trampled habitats and diminishing harvests, of profit diminishing pleasure. Still, there's an undeniable generosity of vision and expertise in this book. It is worth the time and shelf space of NAMA members everywhere.

NAMA MEMORIAL FELLOWSHIP

Carolina Piña Páez, Oregon State University
pinapaec@oregonstate.edu

"Carolina Piña Páez is a PhD candidate in the department of Botany and Plant Pathology at Oregon State University in Dr. Joey Spatafora's lab. She received her BS in Biology from the University of Sonora where she worked with gasteroid fungi in the Sonoran Desert. In summer 2009 she was first introduced to truffles, and fell in love with their fascinating ecology and convergent evolution. In 2014 she received her MS in Systematics from the National Autonomous University of Mexico (UNAM), working on the systematics of truffles in the Transmexican Volcanic Belt with Dr. Roberto Garibay-Orijel. Her current research focuses on the diversity and population genetics of Rhizopogon in the Madrean Sky Islands of the Southwestern US and Northwestern Mexico. Specifically, Carolina is studying how Rhizopogon has migrated with its hosts and how isolation and environment is shaping its evolutionary trajectory. Her research interests include fungal taxonomy, host shifts in ectomycorrhizal fungi and sexual reproduction, and in particular how recombination impacts genetic diversity."

INTRODUCING FUNGAL DIVERSITY SURVEY

Saving the world, one mushroom at a time

Bill Sheehan, Joanne Schwartz and Sigrid Jakob

In the July/August issue of *The Mycophile*, we described how the North American Mycoflora Project was about to rebrand and expand our mission. We described the origin of the Mycoflora Project in 2012 and how it morphed in 2017 into a citizen science project focused on sequencing and vouchering fungal specimens, and NAMA's role in it.

On August 8, 2020, we unveiled our new incarnation, Fungal Diversity Survey, or FunDiS for short (fundis.org). Here, we'll explain why we chose a new name and how all levels of mushroom enthusiasts can participate and contribute to scientifically documenting this amazing and understudied kingdom.

FUNGAL DIVERSITY SURVEY

A name that celebrates what we do

Let us assure you, this is not merely change for change's sake. Much thought has gone into this renaming. We hope you'll agree with us that our new name better reflects who we are and what we do. Hear us out:

Having the word Mycoflora in our name had become a challenge. "Flora" is a term from botany – the study of plants. Fungi, as Professor Don Pfister so eloquently explained in a recent blog post, are anything but plants. Fungi are their own kingdom – but as long as they get lumped in with plants they will not get the recognition, attention and protection they deserve. As an organization championing the special place of fungi in the world we needed to stand up for them – starting with our name.

When we embarked on a search for a new name, we enlisted the collective creativity of more than 30 stakeholders who brainstormed names with us and helped us narrow down the resulting list. Thank you all – you know who you are!

We chose Fungal Diversity Survey (FunDiS) for a number of reasons:

Unlike Mycoflora Project, it's a name anyone can understand.

- It celebrates our own kingdom, fungi.
- It actually explains what we do, and why we do it: our participants spend countless hours out in the forest and fields to survey and map the wonderful, endlessly fascinating and critically important diversity of fungi.
- Fungal diversity is ecosystem diversity; we're celebrating the importance of biodiversity.
- And it has a cool abbreviation: FunDiS. What's not to love?!

Expand your fungal horizons

Now there's more ways than ever to make your mushroom hunts and photographs make a difference for science, for conservation, and for YOU! Our rebranding marks a significant evolution of our mission, an evolution we're already hinted at in a blog post: A four-tiered model for crowdsourcing fungal biodiversity citizen science.

There are now four ways of participating in FunDiS:

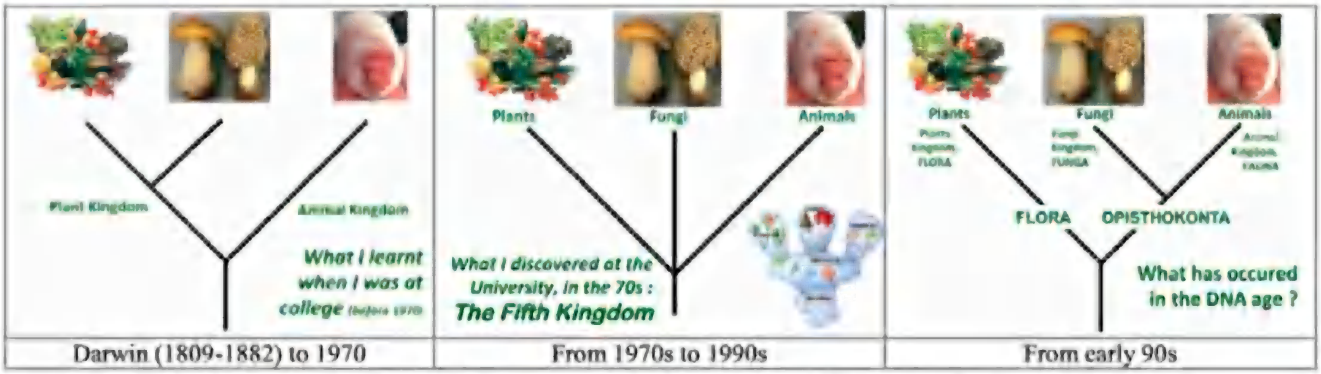
Level 1. Document: Join our iNaturalist or Mushroom Observer projects and contribute your observations. We'll look at them, help with ID's and offer helpful comments, if needed, about creating observations that are more valuable for science.

Level 2. Sequence: In addition, submit tissue for DNA sequencing and interpret results.

Level 3. Voucher: In addition, preserve well-documented, dried specimens in curated fungaria. Join an existing FunDiS project through a club or with local mycophiles, or start your own FunDiS Project, near your home or some wild, conserved or park lands. You'll learn much more and find several rich ways to contribute to conservation and fungal biodiversity science. You might also apply for a sequencing grant to help know with much greater certainty about your discoveries.

Level 4. Super-user: In addition, learn DNA technology, teach others how to analyze DNA results

Figure 1: Three major kingdoms in the tree of life (Simplified version)



From: "State of the Words of Fungi" by Raymond Archambault, McIlvainea Vol. 27, 2018.

and create phylogenies; perhaps even describe new species.

The last decade has seen an explosion in citizen science and participatory crowdsourcing of the natural world. For example, a staggering 500 million bird observations have been logged on eBird globally. Almost 2 million observations of fungi by over 170,000 observers have been recorded for North America on iNaturalist. And over 385,000 observations of almost 12,000 fungal taxa, with over 1.1million images, have been uploaded by about 7,000 mycophiles on Mushroom Observer. This surge in participatory, technology-enabled citizen science creates an unprecedented opportunity to engage mycophiles at every level to survey our continent's fungi.

Up until now we've focused on requiring participants to operate at the level of professional mycologists: extensive documentation; sequencing DNA, and preserving dried specimens for deposit in fungaria. While this is wonderful (and not something we would ever want to lose) we realized that it is overwhelming to the average mushroom lover and represents a somewhat limited view of what constitutes legitimate science in the era of crowdsourcing.

We asked ourselves—what could FunDiS meaningfully contribute? After all, iNat and Mushroom Observer seem to be doing fine without our help. When we asked mycologists interested in using citizen science data, the need was clear: better data! While there is no shortage of observations of fungi on internet platforms, many observations are not useful because pictures are poor or insufficient and many are wrongly identified.

We realized that there is an opportunity to broaden our current mission, by engaging the large universe of mycophiles posting observations online and (a) training them to provide higher-quality documentation and (b) ensuring that observations get Iidentified by experts.

ACTION: If you are a NAMA member and/or NAMA-affliated club member who wants to identify your mushroom finds while contributing to science at the same time, consider joining and contributing your observations to our FunDiS iNaturalist Project. We have minimum quality standards for observations and are recruiting "triagers" to give people feedback on how to improve observation quality, and expert identifiers to provide or confirm IDs and flag interesting specimens for specialists. We are developing a parallel program on Mushroom Observer, which you can learn about on the FunDiS site.. (If you'd like to help triage, email inat-admin@fundis.org or mo-admin@fundis.org).

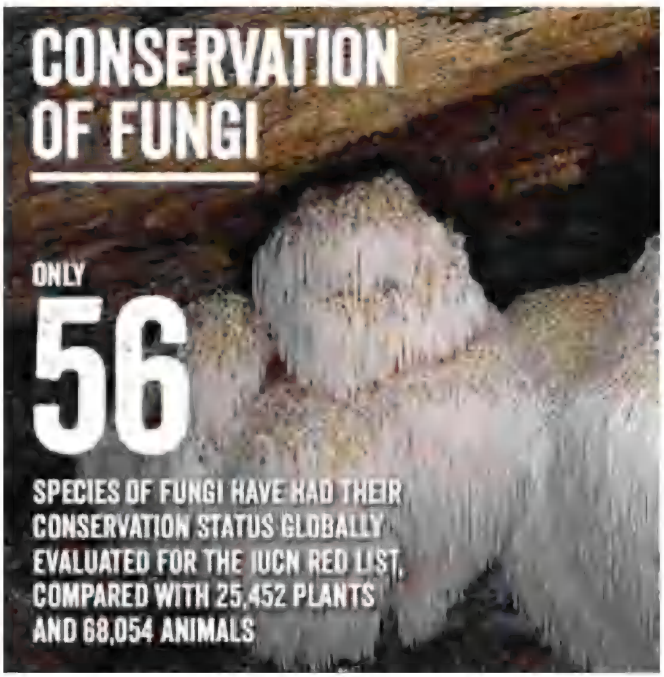
Sequencing is back!

Making the molecular revolution accessible and affordable to individuals, clubs and organizations has been at the core of what we do. We're proud of what we achieved: to date, some 5,000 specimens have been sequenced from projects, forays and MycoBlitzes, with results posted on MycoMap, MyCoPortal, Genbank; and original iNat observations for MycoBlitzes. These include rare and undescribed species, and clarification of recognized species.

Sequencing from existing projects has been on hiatus since the end of last year because we've been identifying and testing a new partner – BOLD, the Barcode of Life Data System, based at the Center for Biodiversity Genomics at the University of Guelph, Ontario. They are able to analyze high volumes of samples at low cost, with a predictable turnaround time. This partnership will clear past bottlenecks and offer other advantages, such as easy GenBank submission.

If you're an individual or project leader who has been "tagging, bagging and holding" onto your specimens over the last nine months, we thank you for patience! As of today, we're accepting specimens for sequencing again and are making new grants available.

> **ACTION**: Even more exciting, we are once again offering sequencing grants for registered FunDiS projects. Funding for grants came from NAMA and the Mycological Society of America two years ago. We're also planning several programs to assist mushroom clubs and independent projects in raising funds for sequencing. Information on getting new grants or purchasing new sequences can be found here.


CONSERVATION OF FUNGI
ONLY
56
SPECIES OF FUNGI HAVE HAD THEIR CONSERVATION STATUS GLOBALLY EVALUATED FOR THE IUCN RED LIST, COMPARED WITH 25,452 PLANTS AND 68,054 ANIMALS

From Willis, K.J., 2018. State of the world's fungi

Fungi under attack: focus on conservation

The other question we asked ourselves as we were evolving our mission was about our impact in the world.

Today, fungi are under threat like never before. Habitat destruction, pollution and climate change mean that fungi are going extinct or changing distribution faster than we can catalog and map them.

This creates not only an opportunity but an urgent need to put FunDiS into the service of conservation, as a tool to help document and even protect rare and endangered species and habitats dependent on fungi, or a way of tracking species that are harbingers of climate change.

In the summer of 2020, we assembled a working group of mycologists and leaders in fungal conservation to develop a proposed course of action. This group has developed some exciting ideas that we'll share later in the year. Please stay tuned!

FunDiS's new mission

Our rebranding from NAMP to FunDiS has been a journey that involved a lot of soul searching, brainstorming, reflecting, revising, rewriting and debating. We could never have accomplished without the many volunteers who put in the time and shared their expertise. We could have also not done it without our participants who patiently waited for us while all this was happening.

In conclusion, we are proud to share our new mission, which that lays out the work ahead of us for many years to come:

Our Mission is to equip citizen and professional scientists with the tools to document the diversity and distribution of fungi across North America. These data will help increase awareness of the critical role of fungi in the health of our ecosystems and allow us to better protect them in a world of rapid climate change and habitat loss.

If you're curious and would like to find out more, sign up for the Funga Decoded eNewsletter and Deep Funga Blog and follow us on Facebook.

ABOUT THE AUTHORS

Bill Sheehan *is a recovering entomologist who especially likes crust fungi. He's leader of the Northeast Georgia Funga FunDiS project and is President of FunDiS.*

Joanne Schwartz *is a naturalist who has studied fungi for over 50 years. She leads the Macro Fungi of the Channel Islands (CA) FunDiS project and is Vice President of FunDiS.*

Sigrid Jakob *is an amateur mycologist with a particular interest in coprophilous fungi. She leads the Fungi of NYC FunDiS project and is a FunDiS board member.*

BOOK REVIEW

Fungipedia: A Brief Compendium of Mushroom Lore

By Dianna Smith

Fungipedia: A Brief Compendium of Mushroom Lore
Lawrence Millman (Author)
and Amy Jean Porter (Illustrator)
Princeton University Press
Published 2019
ISBN: 9780691194721
Price: $16.95 / £9.99

Fungipedia by mycologist Lawrence Millman is a diminutive 200-page hardcover book filled with an enormous treasure trove of fascinating facts and lore about the fungi kingdom and its impact on our planet and its inhabitants. While not exactly a mushroom identification field guide, at a mere 4.5 x 6.75 inches, it is the size of a book you wouldn't mind carrying into the woods with you. It should appeal to beginning mushroom enthusiasts who may not be familiar or comfortable with scientific binomials, as well as more experienced folks interested in brushing up on essential mycological terms. The book is also entertaining and filled with amusing stories about mycologists, as well as some of humanity's more curious beliefs regarding mushrooms through time. What mushroom enthusiast wouldn't be drawn into learning more about mycology after reading beyond the humorous titles of entries like 'beech aphid poop fungus', 'berserker mushroom', 'bird droppings', 'hair ice', or 'zombie ants?' Organized alphabetically from A (Agarikon) to Z (Zygomycetes), Millman manages to cover 180 topics concisely with an admirable sprinkling of detail. Subjects of mycological interest to citizen scientists (a.k.a 'amateurs') include well-composed definitions of terms such as 'anamorph', ectomycorrhizal and endomycohrrizal fungi, endophytes, hyphae, and mycelium. Parts of fungi are described in clear but simple terms: gills, umbo, cystidia, latex, sclerotium, spores, stem, veil (annulus). All the basic concepts regarding nutritional and ecological functions of fungi such as parasitism, saprobic activities, mycorrhizal associations, brown, noble, soft and white rot are addressed. A few of the several fungi addressed in this compendium include bird's nest fungi, the caterpillar fungus (*Ophiocordyceps sinensis*), chaga (*Inonotus obliquus*), corals, earth *tongues* (*Geoglossum, Microglossum, Neolecta,* and *Trichoglossum* spp.), ergot (*Claviceps purpurea*), jelly fungi, inky caps (*Coprinus, Coprinellus, Coprinopsis* sp.), lobster mushroom (*Hypomyces lactifluorum*), maitake (*Grifola frondosa*), matsutake, morels, puffballs, oysters (*Pleurotus* sp.), polypores, and shitake (*Lentinula edodes*). Common names of particular fungi provide the ethnomycologist with an opportunity to expand on the meaning of and folk lore behind big laughing gym (*Gymnopilus junonius*), the nitrogen-feeding 'cemetery mushrooms' (*Hebeloma syrjense* and *Hebeloma vinsophyllum*), corn smut (*Ustilago maydis*), cramp balls (*Daldinia* spp.), dead man's fingers (Xylaria spp.), fairy rings, king Tut's curse, morel mushroom 'penises', magic mushrooms containing psilocybin, the stinkhorn (*Phallus impudicus*), the train wrecker (*Neolentinus lepideus*) and witches brooms. Among the twenty-four people honored by inclusion are musician-mycologist John Cage, African American mycologist George Washington Carver, mushroom

'Guru' Sam Ristich, the Mexican shamaness Maria Sabina, Otzi, the five-thousand-year mummified Tyrolean body discovered in the Alps, and Renaissance mycologist Paul Stamets. Characters from literature, legend and fantasy include the hookah-smoking caterpillar who sits on a mushroom in *Alice in Wonderland*, Puck, the sprite of Shakespeare's play *A Midsummer Night's Dream*, and, of course, Santa Claus. Diseases caused by fungi and or fungi-cultivating, eating or transmitting insects include white nose syndrome of bats infected by the ascomycete *Pseudogymnoacus destructans*, valley fever caused by *Coccidioides immitis*, the tree-girdling canker Chestnut 'Blight' caused by *Cryphonectria parasitica*, and Dutch Elm Disease caused by fungal spores carried by an Asian bark beetle.

The black and white illustrations by Amy Jean Porter are a perfect accompaniment to the informative and lively text. *Fungipedia* can be read in less than two hours and will prove useful to all. It would make a great stocking stuffer or gift for anyone with whom you may want to share your passion for fungi. Gary Lincoff's Audubon Guide to the Mushrooms of North American has frequently been referred to as the 'Mushroom Bible.' *Fungipedia* in my view qualifies as a succinct companion to any good modern field guide. I highly recommend you get a copy to inspire you and lift your spirits during this crazy time of COVID-19 quarantining. It can be purchased on Amazon for just $12.89 or for $10.99 for Kindle readers.

2020 NAMA SURVEY OF AFFILIATED CLUBS

By Howard Goltz, NAMA Secretary

On 14 June 2020, per the NAMA Board of Directors, I emailed each of our affiliated club's representatives a questionnaire regarding their club's activities and how our clubs and NAMA can better support and learn from each other. In addition to NAMA's 1275 individual, family, student, sustaining and life memberships, we have:

- 82 Clubs in 39 states and WDC
- 6 Regional groups covering multiple states
- 6 Canadian clubs representing 5 of the 10 Provinces

Of the 94 questionnaires sent out, we received 24 responses. Not surprisingly, the responses showed that our clubs are diverse in organization, size, activities and costs, etc., with the *Mycophile* and NAMA's Annual National Foray appearing to be major incentives for membership.

All respondents' clubs have been remaining active in spite of COVID restrictions. Our clubs' on-line meetings and presentations are well attended, often with more participants than pre-COVID, in-person meetings. Virtual participation (36 attendees) in NAMA's August Zoom Board Meeting was double our typical face-to-face annual meetings, including 19 club representatives from across the US and Canada, who might have otherwise not been able to attend. NAMA is entering this virtual trend by offering on-line "educational" programs to all of our members.

While following up on responses, I visited many of our clubs' websites, finding an additional wealth of detailed information on what they are doing. I **"HIGHLY RECOMMEND"** you visit other NAMA club's websites to learn from others, develop new programs, and increase participation in your club. Just go to the NAMYCO.COM website and click on "Clubs" for links to their websites and links to directly contact other club representatives – who are willing to share details of their programs, organizations and offer suggestions – we are a mushroom information sharing group!

Here's the summary of survey responses and ideas – look for NAMA to follow-up.

2020 Survey of NAMA Affilliated Clubs	RANGE	AVE	YES	NO
Your club's average number of members the last few years:	40 to 500	165.29		
Student club membership annual dues:	$0 - $25	$8.63		
Single club membership annual dues:	$10 - $30	$15.42		
Family club membership annual dues:	$12 - $40	$20.04		
Is your club incorporated?			11	13
Is your club insured?			10	14
Do you have a board of directors?			20	4
Your club's committee or position names:				
Typical Officers, Foray, Program, Newsletter, Refreshments, Mycoflora, Outreach,				
Education, Professional Advisor				
Number of member forays per year:		9.08		
Does your club voucher & collect foray data?			14	10
Number of non-foray member meetings per year:		5.75		
Mushroom identification meetings?	0 - 8		17	7
Speaker / lecturer meetings?			20	4
Craft, cooking, photo demos etc. meetings or workshops?			16	8
Cultivation, Dying, Basketry, various				
Restaurant "Mushroom Banquets?"			6	18
Fungal pot-lucks or picnics?			18	6
Certification classes or workshops?			3	21
Vouchering classes or workshops?			4	20
Do you have booths/exhibits at science fairs, state fairs etc.			10	14
Other club activities or public engagement:				
At Schools, Libraries, Fairs, Garden Clubs, Forays				
Do you have a digital newsletter?			16	8
Do you have a hardcopy newsletter?			7	17
Newsletters per year:		3.92		
Do you have a club store?			9	16
Your club's web address if you have one:			22	2
Does your club have a Facebook page			17	7
Do your club have a Yahoo or Google Group?			5	19
Does your club sponsor a scholarship(s)			8	16
Other club activities				
Forays with other clubs, tree identification session				
Potlucks, Mycoflora, NPS & State Park Education				
Most popular or successful club activities:				
Forays, Speakers, Banquets & Potlucks				
Least popular or successful activities:				
Scholarships (hard to get applicants)				
Do you know your NAMA Regional Representative?			10	14
What can NAMA do (better) for your club or for you?				
Online Programs, Mycophile is great, Scholarships to join or attend NAMA				
Help find insurance, ID sessions on line, more regional forays				
What can your club share with, or do, to help other clubs and NAMA?				
Co-sponsor forays, zoom meetings, meet with other clubs,				
What is your club doing regarding Covid 19?				
Doing Zoom, few "safe" forays, cancelled meetings				
Other comments:				
Zoom, share: club budgets, safety issues, insurance costs, poison expertise, tick info,				
Core group of long-term members and short terms who learn what they want and drop out				

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THE MUSHROOM CULINARY ARTS CORNER

"No Knead" Iron Skillet Pizza with Chanterelle Mushrooms

By Salma St. John
Committee chair and NAMA Vice President

This video is a part of a series that I am creating to post on the Mushroom Culinary Arts page. These videos provide information about the culinary aspects of mushrooms. They also make some basic knowledge of the mushroom featured in each recipe available to individuals who are considered "new" to amateur mycology and seek to learn some general/ basic information.

The recipe in this video presents a "no knead" method for making delicious, rustic pizza. So to many pizza lovers who shy from making the pie because of the work involved, this pizza practically makes itself! I hope many of you get to make and enjoy this chanterelle pizza.

Here is the link to the video:
https://youtu.be/ENiJDOUraBU

THE MYCOPHILE

Newsletter of the North American Mycological Association

Book Review: Entangled Life Pg. 4
Book Review: Koji Alchemy Pg. 6
2020 NAMA Photo Contest Winners Pg. 8
Registry of Mushrooms in Works of Art Pg.14

November-December 2020 www.namyco.org

PRESIDENT'S MESSAGE

Barbara Ching, NAMA President

Hello NAMA members,

For most of us, fall is *the* mushroom season, and I can see on Facebook that many NAMA members are finding some of fall's best mushrooms. I also know that for many of us, 2020's natural disasters have made walks in the woods fruitless or even impossible.

Who could have predicted that Zoom would bring us some virtual consolation? I have zipped into some charming, soothing, and best of all, enlightening online club meetings and events. Over the summer, I Zoomed to the New York Mycological Society's online identification session. Most recently, I watched the Humboldt Bay Mycological Society's September meeting with an id session and presentation on Entolomatacaea by Dr. David Largent. I wish I lived there.

Learning new mushrooms is fun; it's what I came for, but as I watched both of these events, I could see in so many faces how happy the club members were to be together as they shared their questions and answers. That's what I stay for.

And that's why my favorite part of being president is selecting the awardees for the President's Choice service awards. Like last year, I found it impossible to narrow the selection down to one. This year the awards went to *McIlvainea* editor Laura Juszczak and Sister Marie Kopin. Laura Juszczak (New York Mycological Society) has given so much of herself and her scientific expertise to revive our journal and ensure that our contributors' work shines. Laura will also become our second Vice-President in January 2021. Sister Marie Kopin's (Michigan Mushroom Hunters Club) dedication to fungal education deserves a full-blown rap. Currently the chair of NAMA's education committee, she has dedicated many years to making sure NAMA can offer guidance to our members but also to science teachers across the country since mycology is given so little attention in standard science curricula.

I am happy that many of you were able to attend our ZoomShroomFest on October 18 featuring Jay Justice speaking on Amanitas, Chef Chad Hyatt's creative cooking demonstration, Giuliana Furci's inspiring presentation on women in mycology, a fun identification session, and Dr. Andrew Methven's presentation on the mushrooms of the Missouri Ozarks, a sneak preview of what we might find at MoNama 2022. Foray Committee Chair Sam Landes pulled together this major event with lots of help from Webmaster Jane Onorati, Membership Secretary Christy Eesedy, and Treasurer Melodie Gates. Recordings will be posted on our YouTube channel soon.

Finally, you are invited to two new Zoom opportunities for us all to learn from NAMA members. On November 9, Jeremy Umansky, of the Ohio Mushroom Society, will tell us about koji, a fascinating filamentous fungus (*Aspergillus oryzae*), that adds umami to just about any food. Best of all, Jeremy will show you how to make it at home. Wait until you see how beautiful it is!

Jeremy is co-author, with Rich Shih, of *Koji Alchemy: Rediscovering the Magic of Mold-Based Fermentation* (Chelsea Green,2020). He is also a James Beard Award nominated chef and chef/owner of Larder: A Curated Delicatessen & Bakery in Cleveland, Ohio. The presentation will begin at 7:30 pm. Registration will be available on NAMA's website by November 1.

On January 18, 2021, Scott Pavelle of the Western Pennsylvania Mushroom Club (WPMC) will present on the bolete filter, an identification tool created by WPMC members and other mushroom hunters in the area. The filter allows mushroom hunters to easily identify poisonous species. Check it out here: https://boletes.wpamushroomclub.org/ The presentation will begin at 7:30 pm. Registration will be available on NAMA's website by December 1. Scott asks that you submit questions in advance. Once you register, you'll get more information about how.

COVER PHOTO: Open Pictorial 3rd Place, Mark Bower, *Mycena subcaerulea*

POISONING ALERTS

Michael W. Beug, chair of the NAMA Toxicology Committee, has brought two recent alerts to my attention. Michael receives daily mushroom poisoning updates through Google alerts, and felt that these two were worth reprinting and sharing with NAMA members.

SALMONELLA OUTBREAK CAUSED BY BLACK FUNGUS

Source: https://www.cdc.gov/salmonella/tanley-09-20/index.html

Forty-three people infected with the outbreak strain *Salmonella* Stanley have been reported from 10 states: Arizona, California, Connecticut, Georgia, Illinois, Louisiana, New Jersey, New York, Pennsylvania, and Wisconsin. Four hospitalizations have been reported, but no deaths have been reported. Mushrooms were distributed to restaurants in six packs of five-pound bags labeled as **Shirakiku brand Black Fungus (Kikurage)** with Universal Product Code (UPC) bar code 00074410604305, item #60403, imported from China. These mushrooms were sold only to restaurants and not directly to retail customers. Four illness clusters were identified at restaurants serving ramen in three states. Eight (89%) of the nine ill people linked to restaurant clusters reported eating wood ear mushrooms or ramen containing wood ear mushrooms in the week before their illness started. Whole genome sequencing analysis of 26 bacterial isolates from ill people did not predict any antibiotic resistance. This investigation is ongoing. CDC will provide more information as it becomes available.

MUSHROOM IDENTIFICATION APPS FOR SMARTPHONES UNRELIABLE

Source: https://seaviewroad.com/2020/09/29/beware-apps-sometimes-pick-up-poisonous-mushrooms/

Source: https://www.theverge.com/2017/7/28/16054834/mushroom-identifying-app-machine-vision-ai-dangerous

Source: https://kval.com/news/local/4-people-taken-to-hospital-after-using-phone-app-to-identify-mushrooms-11-12-2015?fbclid=IwAR2biKWXNFaAAGD7N6GZiF-YfLKvcn0o2eWNIXm4B7auHB_kxx5w8kIMHDg

As a member of several Facebook mushroom identification groups, I see the question "Are there any good apps to use for identifying mushrooms?" daily. Most often the response is a simple "No," other times suggestions are made for a few available apps such as Seek, Shroomify, or iNaturalist. Concern over incorrect identifications given by the apps is growing as more people hunt for mushrooms worldwide. The chance for error is very high, and the consequences can be fatal.

2020 ELECTIONS ANNOUNCEMENT

Salma St. John
Nominating Committee Chair

On behalf of the Nominating committee, I am happy to announce the results of the 2020 elections that took place during the NAMA annual meeting on October 5th, 2020.

Treasurer: Melodie Gates (3rd term)
"I have been hunting mushrooms for 50 years, member of and treasurer of SSMC for 24 years. I get a thrill out of introducing mushrooms to new members."

Second Vice President: Laura Juszczak (1st term)
"While I am a professor of chemistry with my own arcane area of research, I am not one of those for whom the Linnean names roll off the tongue. I am more of process person: what can you do with it? Can it be eaten? As such, you will never find me manning one of the ID tables. Instead, I edit the NAMA journal, McIlvainea. Now, you might find me doing whatever the second vice president does. This is a satisfying way to give back to NAMA, which continues to expand my horizons. If I am selected to be the NAMA VP2 position, I consent to do my best to carry out the responsibilities of the position and serve NAMA in this capacity."

Regional Trustee – Gulf States: Juan Mata (1st term)
Dr. Juan Luis Mata is an Associate Professor, and curator of the Fungarium, with the Biology Department of the University of South Alabama. He earned his Ph.D. from the University of Tennessee, Knoxville. His research background is mycology. Mata's broad interests are with the taxonomy, systematics, evolution and ecology of mushrooms. Some of his research projects are focused on American shiitake and other wood and leaf-litter decomposing mushrooms from the US Gulf Coast region and Caribbean basin.

Congratulations to our newly elected officers and trustee; thank you for your volunteerism and your wish to serve the NAMA organization.

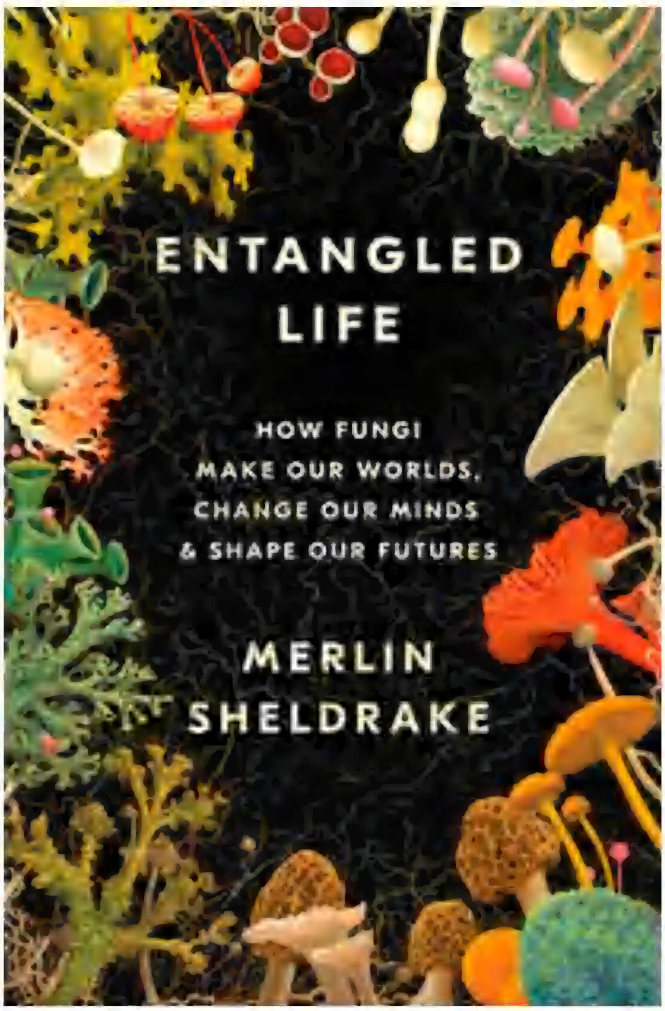
BOOK REVIEWS FOR *THE MYCOPHILE*

One of NAMA's committees that remains little known to probably the bulk of the membership is the Editorial and Literature Committee, the literature function of which is coordinated by Steve Trudell. The committee has several charges in the NAMA Policy Manual but an important one is to provide reviews of books, DVD's, apps, software programs, and the like for publication in The Mycophile. If you learn of a new book (or DVD or whatever) that you feel would be of interest to other NAMA members, or if you would like to write a review, please contact Steve (mycecol@uw.edu) so that he can coordinate acquisition of the items and submission of reviews to the newsletter.

ENTANGLED LIFE:

How Fungi Make Our Worlds, Change Our Minds & Shape Our Futures

Review By Debbie Viess



Entangled Life
Hardcover | $28.00
Published by Random House
May 12, 2020 | 368 Pages | 6-1/8 x 9-1/4 | ISBN 9780525510314

"Entangled Life," first book by author Merlin Sheldrake, takes a deep dive into the science and fascination of fungus, and in the telling, makes it fun to read.

This well-written and well-researched book clearly demonstrates just how essential fungi are within the world that we live in, and mycophiles of all persuasions will find much to like within its pages.

Sheldrake is a scientist who obtained his PhD in tropical ecology from the University of Cambridge. He is a musician (there are a number of musical analogies within these pages), brewer (the lowly yeasts stimulated his first love for fungi) and son of Rupert Sheldrake, the famous parapsychologist who developed the hypothesis of morphic resonance. It is safe to say that young Merlin was steeped in both the natural world and the permeability of its boundaries from a very early age. He retains a sense of wonder and a deep curiosity about the realities and the mysteries of fungi, all tempered by his rigorous scientific training. Sheldrake stitches his extensive personal experiences with all matters mycological into a broad tapestry of science and narrative, presenting both historical and modern day mycological theories.

Chapters discuss how fungi and plants first cooperated to move onto land, and speculate upon just what was that giant organism of the Devonian, *Prototaxites* (spoiler alert: Merlin is in the lichen camp). He provides referenced narratives on how fungi communicate and "make decisions." There is a richly detailed chapter on our broadening understanding of what dynamic systems lichens actually are, equating them to worlds in and of themselves. Engaging stories are told about the personalities and abilities of truffle hunting dogs in Italy, and the powerfully pungent chemicals that lure truffle spore dispersers. Other chapters delve into the morbidly fascinating *Cordyceps* species, and their abilities to commandeer the nervous systems of insects for their own devices. Not only does Sheldrake discuss the modern day clinical use of psilocybin to treat emotional and mental traumas, but shares with us his own experience of taking LSD in a controlled clinical setting, in an attempt to access his "scientific unconsciousness." The breadth and depth of these topics and more truly brings home the author's point that fungi underlie everything.

Like many of you, I consider myself fairly well informed on most of these mycological topics, yet I still found Sheldrake's mycological journey and analyses both entertaining and enlightening. I liked how Sheldrake drew from a rich trove of prior mycological research, not just citing it, but analyzing it too, in a modern context. Many of his musings were deepened and sometimes even contradicted by footnotes, because science is messy and imprecise, and there is so much we don't know. In fact, in my advance copy of this book, almost ¼ of the pages were composed of footnotes and references. Sheldrake does not just want you to take his word for it. He wants you to think. My kinda guy.

The book was peppered with clever pull-quotes by prominent scientists and laypersons alike, making for some memorable reading. One researcher referred to *Cordyceps* infected ants as "Fungi in ant's clothing." A

psychiatrist working at Johns Hopkins on psilocybe therapy said of that potent entheogen: "psilocybin ... dope slaps people out of their story. It's literally a reboot of the system." Sheldrake came up with his own quotable quote, in referring to the amorphousness of the true fungal body (hint: not a mushroom): "Mycelia is a body without a body plan." True dat.

Sheldrake did his PhD research in tropical forests in Panama, attempting to tease out the connections between fungi and plants. In that complicated, humid, wild, vibrant and incredibly messy landscape, it was far from easy. In particular, he looked at a curious local mycoheterotroph, an achlorophyllous gentian called *Voyria*. Like for all "mycohets" (an abbreviation he coined), it obtains its sugars via a fungus hooked up to a plant. He discovered that it was almost impossible to study it as a living system, once it had been severed from the deep ecological connections that made it what it was.

Sheldrake emphasizes time and again that all of these fungal systems are complicated, and that there is still much that we don't know. He turns a empathetically critical eye on the so called Wood Wide Web, not just illuminating and citing the original research, but also advising caution around concepts such as "intention" in trees. Are the chemical signals given by trees and passed along mycelial highways deliberate or passive? Clearly, we don't know.

Sheldrake also gives credit to the non-academics driving modern mycology: people like Paul Stamets and Peter McCoy and the fungal company Ecovative, which uses fungal material for the ultimate bio-degradable packaging, and creates vegan-friendly fungal leather. Of course he touches on hot topics like bioremediation, but as he rightly states, these technologies are in their infancy, and whether they can be scaled up to work in large natural landscapes remains to be seen.

Fungi push envelopes in many ways. One lichen researcher, David Griffiths, came up with the "Queer theory for lichens." Sheldrake states: "Its author argues that lichens are queer beings that present ways for humans to think beyond a rigid binary framework. The identity of a lichen is a question, rather than a known answer."

I found "Entangled Life" to be stimulating, thoughtful and informative, and a bit provocative. Perhaps you will, too. As I was preparing to write this review, I jokingly referred to Sheldrake as Stamets Jr. But considering all that Paul has accomplished and his ability to engage the public in all matters mycological, perhaps that's not a bad thing.

Ironically, Cambridge, Sheldrake's alma mater, lacks a Mycology Department, as do American Universities. But perhaps someday, with bright young scientists like him leading the way towards a greater appreciation for and a growing knowledge of fungi, mycology will once again take its rightful place in those hallowed halls.

THE MUSHROOM CULINARY ARTS CORNER

Cooking "Chicken" with Chef Stamets

By Salma St. John, Committee chair and NAMA Vice President

We all know him as a pioneer in Mycology whose name is well established and recognized as a researcher and innovator in the fields of medicinal mushrooms, mushroom cultivation, and the discovery of fungi. But many may not know that Paul Stamets is also a chef extraordinaire! Paul has been producing a series of videos in which he educates about fungi then shows how to prepare and cook different kinds of mushrooms. His culinary approach to cooking mushrooms is simple as he uses few key ingredients with each wild mushroom only to bring out the beauty of its unique, delectable taste that is tantalizing.

The link below leads us to one of Paul's video in which he prepares the chicken of the woods mushroom (*Laetiporus coniferacola*).

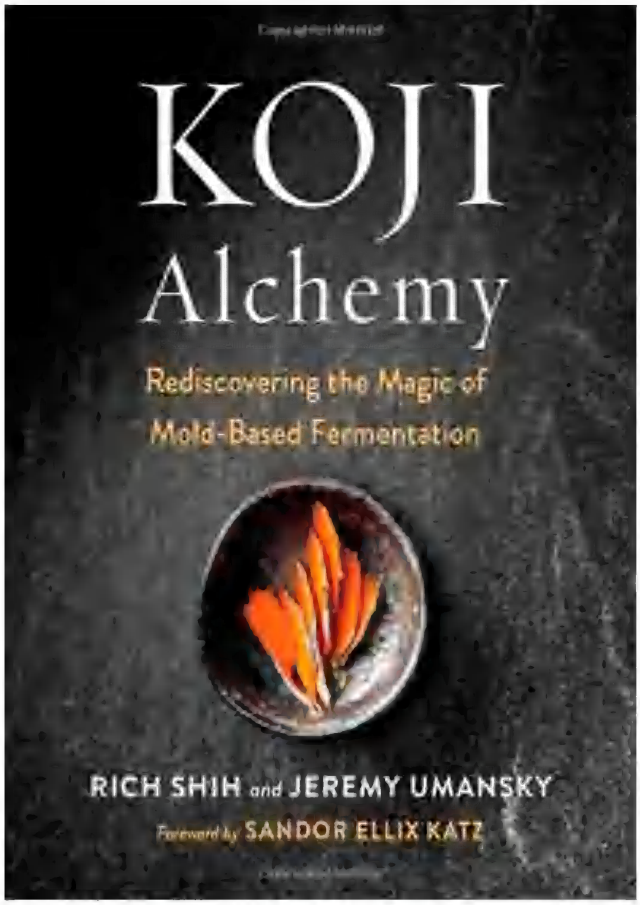
Thank you, Paul, for allowing me to share this video with the Mycophile audience.

https://www.youtube.com/watch?v=9K8HuTHTyP8

AT HOME, THERE, AND EVERYWHERE

A Review of *Koji Alchemy: Rediscovering the Magic of* Mold-*based Fermentation*

By Barbara Ching



Koji Alchemy: Rediscovering the Magic of* Mold-*based Fermentation.
Chelsea Green Publishing, 2020.
Hardcover, 335 pp. $34.95
ISBN: 9781603588683

You may be surprised to read that a book on koji, a mold -based ferment, is a dreamy COVID companion. But *Koji Alchemy: Rediscovering the Magic of* Mold-*based Fermentation* by Rich Shih and NAMA member Jeremy Umansky, provides the enchantment that the title promises. The koji state of mind entails enthusiasm, community, discovery, comfort, and umami.

The authors define this fairy dust as "specific mold grown on a starch medium that can make food extraordinarily tasty if you mix a few ingredients together and wait." The mold is *Aspergillus oryzae.* You probably have some koji in your kitchen right now, they add, since it's an essential component of soy sauce. But "as delicious as soy sauce is," they say, "we'll show you that it only scratches the surface of what can be done with koji." Its honeysuckle scent is intoxicating and heightens the flavor of just about any food it touches, from fresh fruit to prime beef to alcohol to cookies. It even improved one of my favorite quick meals: I rubbed some Shio koji from a Japanese grocery all over an Iowa pork chop, tucked it in the fridge overnight, and then cooked it in a cast-iron skillet. The resulting dinner was easier and more delicious, especially in texture, than the buttermilk brined chop I usually make.

The book includes a detailed chapter on making koji at home—where most of us spend most of our time right now. You need an oven, rice or other grain – the popcorn option intrigues me – and some spores. You'll also need a little patience since the process takes about 36 hours. You could wear a mask while working with the spores since you already have one (right?). Umansky and Shih tell you how to choose your substrates and spores, and you can get these supplies delivered to your door. The photographs of the koji at various stages of growth are the best part of this section – the fluffy "mycelial mat" looks like golden goose down. They offer encouragement by reminding you that mold grows very readily in home kitchens. I know I could find some furry cheese growing in my refrigerator *right now*.

In their exuberant and inclusive prose, the authors also portray the tradition and community that Koji supports. Most materially, they include a detailed section on how to make Koji in the most traditional way possible. While many of us may not want to invest in the equipment, it is inspiring to learn about the refinements and discoveries that koji already bears within it along with the potential it still holds. Koji, the authors explain, is an "active culture" in every sense of the word "culture". The authors maintain that this understanding and respect separates their approach to koji from cultural appropriation. To further demonstrate this point, they include brief, appreciative essays by many other food experts such as Gastropod's Cynthia Graber and Kevin Farley, co-owner of The Cultured Pickle Shop in Berkeley, CA.

The recipe section fills roughly half the book. The range of innovation is astonishing: from cured meat to vegetable charcuterie, from aged alcohols to shio koji quickly blended from koji, salt, and water.

Packed with lucidly relayed scientific and technical information and leavened with enthusiasm, *Koji Alchemy: Rediscovering the Magic of* Mold-*based Fermentation* offers access to discovery and community that COVID and quarantine have diminished. Best of all, it will expand your knowledge of fungus and expand your mycophagical repertoire.

REVIEW OF VIRTUAL SPEAKERS SERIES #1: EUGENIA BONE ON PSYCHEDELIC MUSHROOMS

by Megan Romero

I had the pleasure of attending the first lecture in NAMA's Virtual Speakers Series on August 27. The lecture focused on psychedelic mushrooms and was hosted by Eugenia Bone, author of *Mycophilia: Revelations from the Weird World of Mushrooms*. I was ecstatic to hear that NAMA would be hosting virtual events this year. Due to distance, I have never attended a NAMA foray or in-person lecture, but I've missed my springtime vacation with my cousins in the Sierra Nevada Mountains, where there is no shortage of mushrooms to find and observe. Our enthusiastic, if not amateur, expeditions were what got me interested in mycology in the first place. And while there's no shortage of isolated, forested areas here in Northern California, looking for mushrooms alone can't compare to a true foray experience. I'm incredibly grateful to NAMA Treasurer Melodie Gates, who conceived this debut event, for helping retain a source of community during such unprecedented distance.

I've found that mentioning my interest in mushrooms will usually lead to a conversation about psychedelics. Mushroom hunting isn't as commonplace in the United States as in, perhaps, Czechia or Russia, and isn't considered as much of a fun, social experience as it is one tied to psychedelia. My mother, a science teacher, certainly encouraged my interest in mushrooms from a scientific perspective, but I still remember her telling me to be careful mentioning it to my friends at school, or warning me not to touch a mushroom in case the toxins absorbed into my skin! While psychedelic mushrooms undoubtedly make up a major part of the field of mycology, they're so stigmatized that mycology as a whole isn't always taken seriously.

Eugenia Bone detailed how psychedelic mushrooms were heavily associated with the highly stigmatized youth culture of the 1960s. I learned that research surrounding psilocybin was marred by the stigma associated with psychedelic mushrooms, and only recently is the compound being rediscovered as a promising antidepressant. After entering the body, psilocybin dephosphorylates into psilocin, which has a similar function to the SSRIs commonly used to treat depression. It also shows promise as a possible treatment for obsessive-compulsive disorder, addiction to smoking, Alzheimer's, anorexia nervosa, and cluster headaches. Eugenia recalled a young man whose chronic headaches drastically decreased after taking psychedelic mushrooms.

If not highly reproached as a Schedule 1 drug, psychedelic mushrooms are associated with a sort of mysticism that misrepresents their original source. Eugenia described the introduction of psychedelic mushrooms to American society by Gordon Wasson, who pretended to be searching for a missing relative in order to observe the Mazatec curandera María Sabina use the mushrooms in a divination ritual. Wasson sold the story to *Life* magazine and was credited for the discovery of psychedelic mushrooms, while María Sabina's village was impoverished and overwhelmed with tourism after its publication.

Eugenia structured the lecture into three equal parts, sprinkling in anecdotes related to her over-fifteen years of experience in the field. She described first using psychedelic mushrooms at the ski resort in Telluride. I could not help but laugh when she described being worried that the gondola operator would catch her trip, then soothed after realizing that his hat looked just like *Amanita muscaria*! Her presentation was both informative and engaging – a welcome substitute for the liveliness of the social mushroom foray. I learned that the use of psychedelic mushrooms—in combination with cacao, to lengthen the trip—was first recorded in Guatemala, where I've recently traced part of my family tree back to the fifteenth century (genealogy is a perfect quarantine hobby!)

Again, I want to thank our NAMA Treasurer, Melodie Gates, for conceiving this welcomed event—so popular that she received 150 responses in only 24 hours!—as well as NAMA President Barbara Ching, who contacted Eugenia after watching one of her Zoom lectures for the New York Botanical Garden. And, of course, Eugenia Bone, who graciously agreed to host a second lecture for the members that weren't able to attend the first. While nothing quite compares to a social mushroom family, this virtual event helped fill the mushroom-shaped hole in my life. I cannot wait to attend the rest of the events in the Virtual Speakers Series.

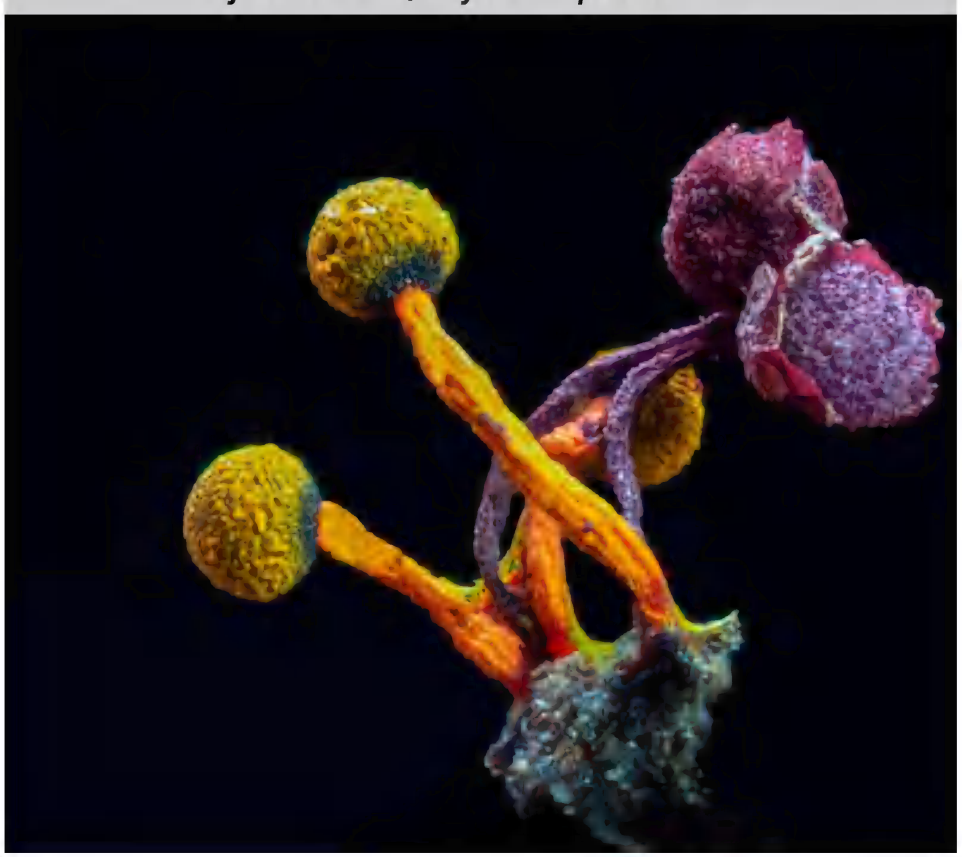
2020 NAMA Photo Contest Winners

Each year, NAMA holds a photography contest, providing a platform to highlight some of the finest examples of mushroom photography of its members. The contest has three categories in which to enter: documentary, pictorial and the judge's option. The winners in each category have their photos shown at the annual NAMA foray evening program and reproduced in the newsletter for the viewing pleasure of NAMA members. The documentary category features images that emphasize key morphological traits used to identify fungi and results in photographs that would be suitable for inclusion in a field guide.

Limited Documentary 1st Place, Garrett Taylor, *Chromosera lilacina*

Limited Documentary 2nd Place, Garrett Taylor, *Cortinarius malicorius*

Limited Documentary 3rd Place
Byron Meade, *Physarum psittacinum*



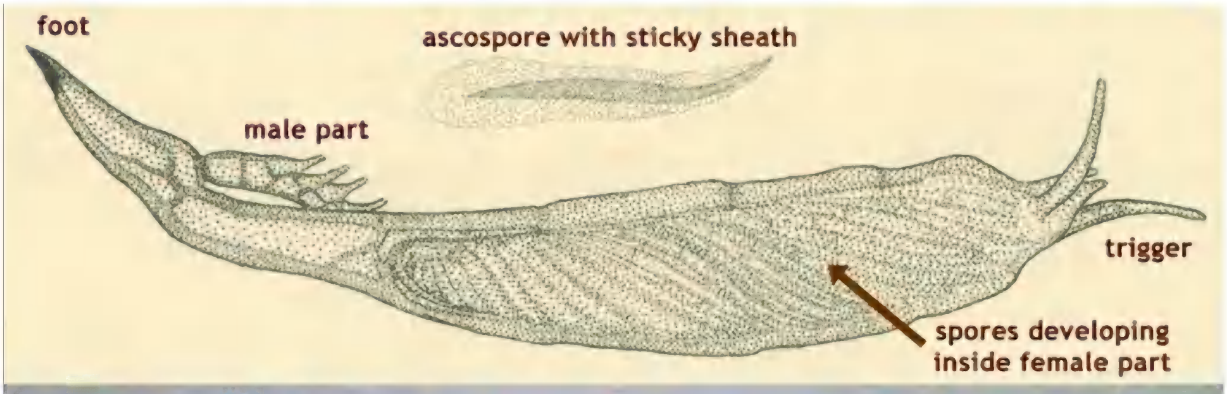
Limited Documentary Honorable Mention, Garrett Taylor, *Callistosporium*

Limited Documentary Honorable Mention, Garrett Taylor, *Hygrocybe*

Limited Documentary Honorable Mention, Garrett Taylor, *Kuehneromyces lignicola*

Open Documentary 1st Place
Mark Bower, *Torrubiella arachnophila* Spider

Open Documentary 2nd Place, Richard Tehan, *Nidula niveotomentosa*



Open Documentary 3rd Place
John Dawson, *Hesperomyces viresce*… a drawing thereof

Open Documentary Honorable Mention, Mark Bower, *Cordyceps bassiana*

Open Documentary Honorable Mention, Drew Henderson, *Urnula padeniana*

THE REGISTRY OF MUSHROOMS IN WORKS OF ART

By Bonni Thoresen and Elio Schaechter

Some 20 years ago, one of us (Elio) had amassed a list of some 200 paintings with mushrooms in them. He found out that a German mycologist, Hanns Kreisl, had collected about the same number of such works. A quick exchange of emails revealed that the two gatherings differed significantly, which was not surprising because the two collectors had used dissimilar sources. But this fact suggested that the total number of such works may be quite large. The two decided to combine forces and create an internet-based Registry of Mushrooms in Works of Art. Notable former contributors with like interests were Tjakko Stijve, Daniel Thoen, and Nancy Mladenoff. To ensure consistency in style, the entries were (and continues to be) redacted by Marjorie Young.

In time, the Registry of nearly 1500 artworks came under the sponsorship of NAMA, which it enjoys to this day. The purpose of the Registry is to contribute to the understanding of the relationship between mushrooms and people as reflected in works of art from different historical periods. Many artists simply expressed appreciation of fungi's forms and beauty. Finding mushrooms in paintings should augment our awareness of the symbolic as well as gastronomic role that mushrooms may have played in various cultures through the ages. Thus, a study of the Registry may well supplement the written record.

Included in the Registry are works with demonstrable artistic value as judged by one or more of the following criteria:

- In the possession of a museum or an established organization or collector
- Mentioned and preferably reproduced in a book or an exhibition catalog
- Shown in an exhibition at a museum
- Seen in a private collection by a person with reliable credentials in mycology or art history

The Registry consists almost entirely of Western paintings. With rare exceptions, it does not include illustrations for books or posters. It does include works other than paintings (e.g., sculptures, engravings, tapestries) that have a special historical, scientific, or artistic interest. These items are noted in bold capital letters.

This Registry is a work in progress. It is an open-ended endeavor. We are trying to increase the numbers of images related to the artworks and over a hundred more items await inclusion in the Registry.

The Registry is meant to provide enjoyment to anyone interested in the subject. We hope that it will stimulate you to look for mushrooms in works of art. Note the criteria for inclusion mentioned above. You are welcome to share your "finds" with us by email (elios179@gmail.com). If possible, please include:

- Name of artist, if possible with nationality, place and dates of birth and death
- Title of the work
- Brief description of the mushroom(s)
- Reference to books or catalogs and, if available, website(s)
- Location of the work

For a deeper look at two Baroque artists' work in the Registry, see *Fungi* magazine articles on Philipp Ferdinand de Hamilton (Summer 2019) and Otto Marseus van Schrieck (Winter 2020.)

NAMA link, https://namyco.org/art_Registry.php

The current curators of the Registry are Pat Nolan, David Rust, Elio Schaechter, Bonni Thoresen, Lucas Vanhevel, and Jacquelene Verna. The redactor is Marjorie Young.

While the Italians were busy with "kitchen still lifes," the Dutch were producing a large number of "forest-floor still lifes," many with mushrooms in natural settings. One of the principal painters of this genre was Otto Marseus van Schrieck, sometimes considered to be the father of this naturalistic style. Van Schrieck often depicted several species of mushrooms in the same corner of the forest, together with snakes, lizard, toads, moths and other "dark" creatures.

Painters of the 17th century often depicted food stalls and vendors, sometimes showing baskets of mushrooms. For one such scene, see a painting by the Flemish Frans Snyders (1579-1657), Fruit and Vegetable Stall.

Mushroom paintings can also be found in the Romantic period. An example is Mushrooms by the British William Nicholson (1872-1949) that shows a plate of *Agaricus campestris* in various stages of maturity.

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"Mushroom" of the Issue: *Morchella twinkietatus*. See how the common mold *Cladosporium* turned some old Twinkies into a pitted, firm form reminiscent of the prized morel. https://www.npr.org/2020/10/15/923411578/a-disturbing-twinkie-that-has-so-far-defied-science

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